

User's Guide

CAJUN P332MF

STACKABLE SWITCH

SOFTWARE VERSION 3.0



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Overview

The Cajun™ P330 family of stackable Ethernet workgroup switches includes a range of modules with 10/100/1000 Mbps ports and a Layer 3 capability/ATM Expansion sub-module. The Cajun P332MF switch has 12x100BaseFX MT-RJ ports and an Expansion sub-module slot. The optional expansion sub-modules provide additional Ethernet, Fast Ethernet, and Gigabit Ethernet connectivity.

A Cajun P330 stack can contain up to 10 switches and up to 3 backup power supply units. The stacked switches are connected using the Cajun X330STK stacking sub-modules which plug into a slot in the back of the Cajun P330. They are connected using the X330SC or X330LC cable (if the stack is split between 2 racks). The Cajun X330RC cable connects the top and bottom switches in the stack and provides redundancy and hot-swappability in the same way that modules can be swapped in a modular switching chassis.

The Cajun P330 is fully compliant with IEEE standards for VLAN Tagging, Gigabit Ethernet, Spanning Tree and Flow Control. This full standards-compliance, combined with auto-negotiation for 10/100/1000 Mbps and half/full duplex facilitates the expansion of your network to match your company's growing needs.

Cajun P330 Family Features

- You can connect up to 10 Cajun P330 switches in a stack. Moreover, this stack can be either in one rack or split over several racks using the X330LC Long Cable, according to your requirements.
- Cajun X330STK - this stacking sub-module is used to connect Cajun P330 switches in a stack, via the Octaplane.
- Cajun P330 BUPS - this back-up power supply module supports up to four Cajun P330 switches.
- One RJ-45/RS232 front panel console connector for both terminal and modem (future) sessions.
- Two fan units in every switch, with operation sensors.
- One virtual IP address for managing the whole stack, the P330 stack is managed as a single entity.
- Hot-swapping of one switch at a time - by activation of the redundant cable:
 - Does not disrupt the operation of other Cajun P330 switches.
 - Does not change stack configuration.
 - Does not require network downtime.
- Connection through Telnet from the front panel ports of *any* switch, with:
 - multiple levels of password protection
 - login and inactivity timeouts

Layer 2 Features

Auto-Negotiation

Every 10/100 port on the Cajun P330 supports Auto-Negotiation which automatically detects and supports the operating mode and speed of a connected device. Auto-negotiation is also supported on the Gigabit Ethernet ports for flow control mode only.

This means that you can simply connect the Cajun P330 to Ethernet or Fast Ethernet equipment at full or half duplex without configuration.

Congestion Control

Congestion control is a key element of maintaining network efficiency as it prevents resource overload.

The Lucent Cajun P330 supports congestion control on all Ethernet ports, using the following:

- Back Pressure in half duplex mode
- IEEE 802.3x Flow Control in full duplex mode

VLANs

The Cajun P330 VLANs are fully IEEE 802.1Q compliant and can handle up to 3k tagged VLANs.

Special VLAN (Virtual Sideband) for management provides physical security for key applications.

Link Aggregation Group (LAG)

LAG provides increased bandwidth and redundancy for critical high-bandwidth applications such as inter-stack links and connections to servers. You can aggregate the bandwidth of up to eight 10/100Base-Tx ports, two 100Base-FX or 1000Base-X ports.

Load sharing ensures that if one of the port connections fails, the other connections will assume the load seamlessly. Load balancing guarantees that the traffic load at any level will be evenly divided among all the LAG links.

IP Multicast Filtering

IP Multicast allows you to send a single copy of an IP packet to multiple destinations, and can be used for various applications including video streaming and video conferencing.

On LANS, IP Multicast packets are transmitted in MAC Multicast frames. Traditional LAN switches flood these Multicast packets to all stations in the VLAN.

Multicast filtering functions may be added to the Layer 2 switches to avoid sending Multicast packets where they are not required. Layer 2 switches capable of Multicast filtering send the Multicast packets only to ports that connect members of that Multicast group. This is typically based on IGMP snooping, GMRP or CGMP.



Note: To operate IP Multicast filtering with IGMP snooping, Hardware Ver. C/S 2.0 or higher is mandatory.

Radius Security

The Remote Authentication Dial-In User Service (RADIUS) is an IETF standard (RFC 2138) client/server security protocol. Security and login information is stored in a central location known as the RADIUS server. RADIUS clients such as the Cajun P330, communicate with the RADIUS server to authenticate users.

All transactions between the RADIUS client and server are authenticated through the use of a “shared secret” which is not sent over the network. The shared secret is an authentication password configured on both the RADIUS client and its RADIUS servers. The shared secret is stored as clear text in the client’s file on the RADIUS server, and in the non-volatile memory of the Cajun P330. In addition, user passwords are sent between the client and server are encrypted for increased security.

Port Redundancy

Redundancy can be implemented between any two ports in the same stack at the link level. You can also assign redundancy between any two LAGs in the stack or between a LAG and a port. One port or LAG is defined as the primary port, and the other as the secondary port. In case the primary port link fails, the secondary port takes over.

Intermodule Redundancy

Intermodule redundancy includes all Port Redundancy functionality. Intermodule redundancy maintains port integrity even when the primary port link fails as the result of a failure of the module. If the module on which the primary port in an Intermodule Port Redundancy is powered down or removed from the device, the secondary port in the Intermodule Port Redundancy takes over. Only one module per stack must be set for Intermodule Port Redundancy.

Stack Redundancy

In the unlikely event that a Cajun P330 switch or Octaplane link should fail, stack integrity is maintained. The broken link is bypassed and data transmission

continues uninterrupted. The single management IP address for the stack is also preserved for uninterrupted management and monitoring.

Hot-Swappable

You can remove or replace any unit within the stack without disrupting operation or performing stack-level reconfiguration. You can therefore adapt the P330 to your requirements on the fly and with a down-time which is second to none.

Backup Power Supply

Each Cajun P330 basic unit comes with a Backup Power Supply (BUPS) connector. If the internal power supply should fail, the Cajun P330 BUPS (available separately,) will automatically supply power to the switch for uninterrupted operation.

Fans

The Cajun P330 base unit fans have integrated sensors which provide advance warnings of fan failure via management.

Network Management Agent (NMA) Redundancy

Since each Cajun P330 module has an integral SNMP agent, any module in a stack can serve as the stack NMA while other NMAs act as redundant agents in “hot” standby. If the “live” NMA fails then a backup is activated instantaneously.

Software Download

Safe S/W download procedure – backup code always present.

Cajun P330 Standards Supported

The Cajun P330 complies with the following standards.

IEEE

- 802.3x Flow Control on all ports
- 802.1Q VLAN Tagging support on all ports and 802.1p compatible
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet/Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1492
- RMON - RFC 1757
- SMON - RFC 2613

Cajun P330 Network Management

Comprehensive network management is a key component of today's networks. Therefore we have provided multiple ways of managing the Cajun P330 to suit your needs.

Cajun P330 Device Manager (Embedded Web)

The built-in Cajun P330 Device Manager (Embedded Web Manager) allows you to manage a Cajun P330 stack using a Web browser without purchasing additional software. This application works with the Microsoft® Internet Explorer and Netscape® Navigator web browsers and Sun Microsystems Java™ Plug-in.

Cajun P330 Command Line Interface (CLI)

The Cajun P330 CLI provides a terminal type configuration tool for local or remote configuration of Cajun P330 features and functions.

CajunView™

When you need extra control and monitoring or wish to manage other Cajun Campus equipment, then the CajunView network management suite is the answer. This suite provides the ease-of-use and features necessary for optimal network utilization.

- CajunView is available for Windows® 95/NT®.
- CajunView operates under HP OpenView.

Cajun P330 Network Monitoring

RMON MIBs - RFC 1757

- RMON support for groups 1,2,3 and 9
 - Statistics
 - History
 - Alarms
 - Events

SMON MIBs - RFC 2613

- SMON support for groups
 - Data Source Capabilities
 - Port Copy
 - VLAN and Priority Statistics

Port Mirroring

The Cajun P330 provides port mirroring for additional network monitoring functionality. You can filter the traffic and mirror either incoming traffic to the source port or both incoming and outgoing traffic. This allows you to monitor the network traffic you need.

SMON

The Cajun P330 supports Lucent's ground-breaking SMON Switched Network Monitoring, which the IETF has now adopted as a standard (RFC2613). SMON provides an unprecedented top-down monitoring of switched network traffic at the following levels:

- Enterprise Monitoring
- Switch Monitoring
- VLAN Monitoring
- Port-level Monitoring

This top-down approach gives you rapid troubleshooting and performance trending to keep the network running optimally.



Note: CajunView is required to run SMON monitoring.



Note: You need to purchase one SMON License per Cajun P330 Stack.

Cajun P332MF Front and Back Panels

Cajun P332MF Front Panel

The Cajun P332MF front panel contains LEDs, controls, connectors and an expansion sub-module slot, as well as a console connector. The status LEDs and control buttons provide at-a-glance information.

The front panel LEDs consist of Port LEDs and Function LEDs. The Port LEDs display information for each port according to the illuminated function LED. The function is selected by pressing the left or right button until the desired parameter LED is illuminated.

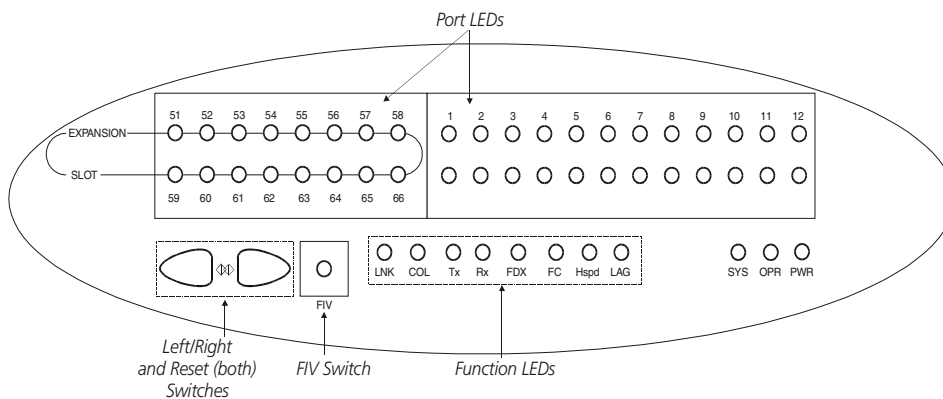
For example, if the COL LED is illuminated, then all Port LEDs show the collision status of their respective port. If you wish to select the LAG function, then press the right button until the LAG Function LED is lit; if you then wish to select Rx then press the left button several times until the Rx function LED lights.

Figure 2.1 shows the Cajun P332MF front panel. Figure 2.2 shows a detailed view of the LEDs (described in Table 2.1), pushbuttons, the Expansion sub-module slot, and the RJ-45 console connector at the bottom right.

Figure 2.1 Cajun P332MF Front Panel



Figure 2.2 Cajun P332MF LEDs



Note: All LEDs are lit during a reset.

Table 2.1 Cajun P332MF LED Descriptions

LED Name	Description	LED Status
PWR	Power status	OFF – power is off
		ON – power is on
		Blink – using BUPS only
OPR	CPU operation	OFF – Module is booting
		ON – Normal operation
SYS	System Status	OFF – Module is a slave in a stack
		ON – Module is the Master of the stack and the Octaplane and Redundant cable are connected correctly. This LED will also light in Standalone mode.
		Blink – Box is the Master of the stack and the stack is in redundant mode.
<i>The following Function LEDs apply to ports 1 to 66</i>		
LNK	Port status	OFF – Port disabled
		ON – Port enabled and link OK
		Blink – Port enabled and the link is down
COL	Collision	OFF – No collision or FDX port
		ON – Collision occurred on line
Tx	Transmit to line	OFF – No transmit activity
		ON – Data transmitted on line from the module
Rx	Receive from line	OFF – No receive activity
		ON – Data received from the line into the module
FDX	Half/Full Duplex	OFF – Half duplex mode
		ON – Full duplex mode

Table 2.1 *Cajun P332MF LED Descriptions*

LED Name	Description	LED Status
FC	Symmetric Flow Control	OFF – No Flow Control only and/or while in half duplex mode
		ON – Symmetric/Asymmetric Flow Control mode is <i>enabled</i> and port is in full duplex mode.
Hspd	High Speed	<u>10/100</u> <u>1000</u> OFF: 10 N/A ON: 100 1000
LAG	Link Aggregation Group (Trunking)	OFF – No LAG defined for this port
		ON – Port belongs to a LAG

Table 2.2 *Cajun P330 <- -> Select buttons*

Description	Function
Left/Right	Individual – select LED function (see table above).
Reset module	Press both right and left buttons together for approximately two seconds. All LEDs on module light up until buttons are released.
Reset stack	Press both right and left buttons together for 4 seconds. All LEDs on stack light up until buttons are released.
FIV	Force Initial Version – boot from backup initial version of the Cajun P330 software, from Bank A (see Note below).



Note: To perform “Force Initial Version” reset the module and at the same time press the FIV reset button (use an opened paper clip or other pointed object). Release the reset buttons first and 1 or 2 seconds later, release the FIV button.

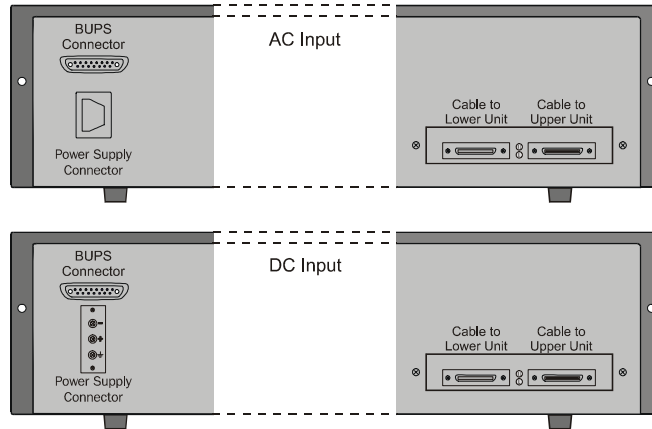


Note: The Port LEDs of the P332MF are numbered from 1-12. Expansion sub-module ports are numbered from 51. Port LED numbers 49-50 are reserved.

Cajun P330 Back Panel

The Cajun P330 back panel contains a stacking sub-module slot, power supply and BUPS connector. Figure 2.3 shows the back panel of the AC switch (top) and the DC switch (bottom) with a stacking sub-module installed.

Figure 2.3 Cajun P330 AC and DC Back Panels



Note: Any further illustrations of the Cajun P330 Back Panel will be that of the AC model, the topmost panel in Figure 2.3.

BUPS Input Connector

The BUPS input connector (see Figure 2.3) is a 5 V DC connector for use with the Cajun P330 BUPS unit only.



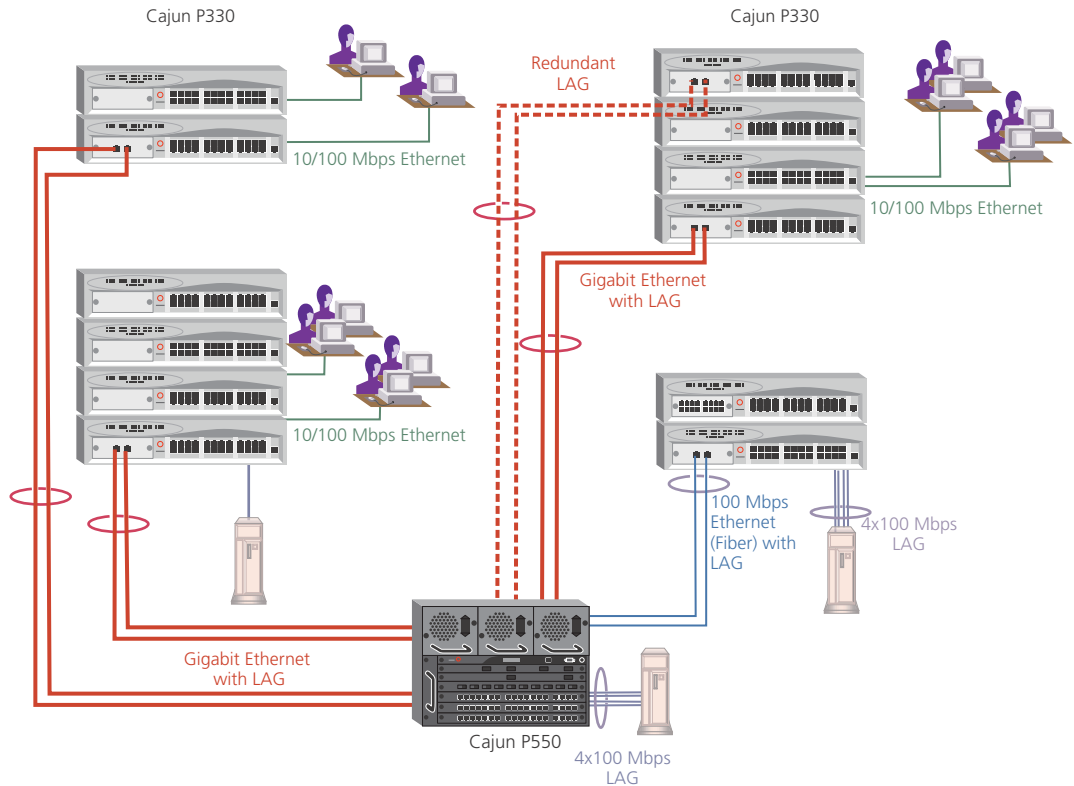
Applications

The following sections describe typical applications for the Cajun P330 in a network with other Cajun Campus products.

Application 1

This application shows Cajun P550 as the network backbone with Cajun P330 stacks as closet devices with LAG and redundant links.

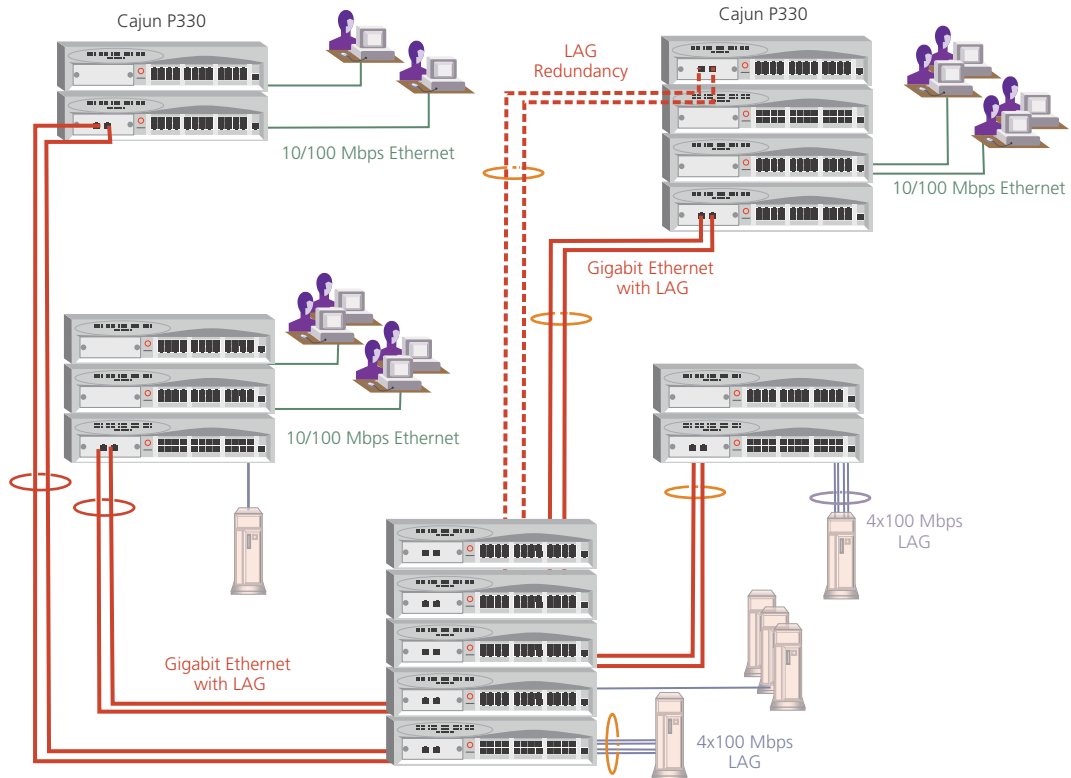
Figure 3.1 Cajun P330 stacks with a Cajun P550 Backbone



Application 2

This application shows a Cajun P330 stack forming the backbone of a Small/Medium-sized Enterprise (SME) network with CajunP330 stacks as closet devices with LAN and redundant links.

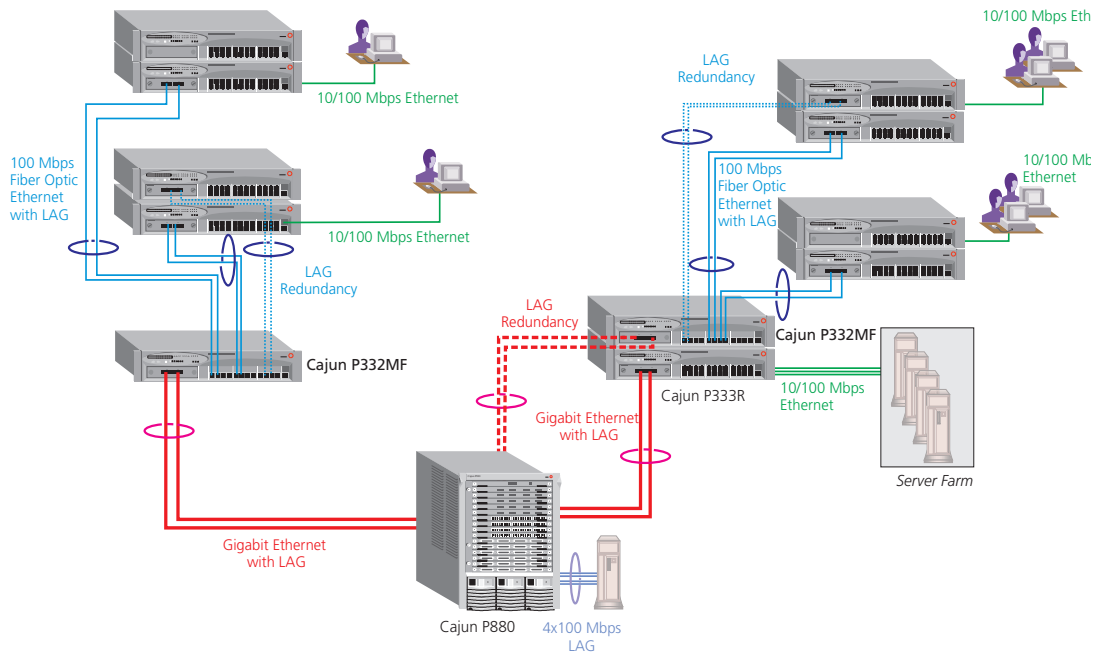
Figure 3.2 Cajun P330 stacks with a Cajun 330 backbone



Application 3

This application shows Cajun P880 as the network backbone with Cajun P332MF deployed as a distribution switch. A Cajun P333R multilayer switch provides local IP routing. The Cajun P333T stacks act as closet devices with LAG and redundant links.

Figure 3.3 Cajun P332MF with a Cajun P880 backbone



Installation and Setup

The Cajun P332MF is ready to work after you carry out the installation instructions given below. All the Cajun P332MF ports provide complete connectivity and no configuration is required to make the system work.

Installing Stacking Sub-modules



Caution: The stacking sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Installing the Stacking Sub-module in the Cajun P330

- 1 Remove the blanking plate from the back of the Cajun P330 switch.
- 2 Insert the stacking sub-module gently into the slot, ensuring that the metal base plate is aligned with the guide rails.
The metal plate of the X330STK (and *not* the PCB) fits onto the guide rails.
- 3 Press the sub-module in firmly until it is completely inserted into the Cajun P330.
- 4 Gently tighten the two screws on the side panel of the stacking sub-module by turning them.



Note: The Cajun P330 switch must not be operated with the back-slot open; the stacking sub-module should be covered with the supplied blanking plate if necessary.

Positioning

Cajun P330 can be mounted alone or in a stack in a standard 19-inch equipment rack in a wiring closet or equipment room. Up to 10 units can be stacked in this way. When deciding where to position the unit, ensure that:

- It is accessible and cables can be connected easily and according to the configuration rule.
- Cabling is away from sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines and fluorescent lighting fixtures.
- Water or moisture cannot enter the case of the unit.
- Air-flow around the unit and through the vents in the back and sides of the case is not restricted.



Note: Use Octaplane cables to interconnect with other switches.

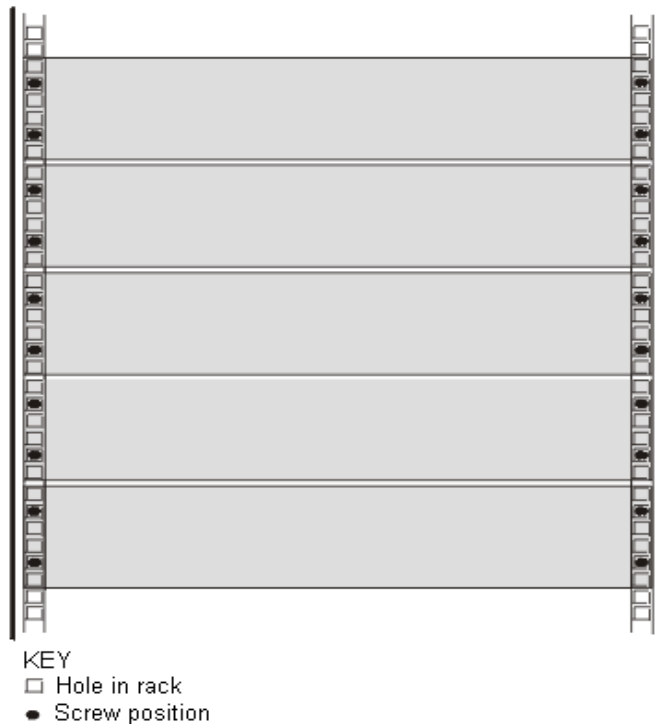
Rack Mounting

The Cajun P330 case fits in most standard 19-inch racks. Cajun P330 is 2U (88mm, 3.5") high.

Place the Cajun P330 in the rack as follows:

- 1 Snap open the hinged ends of the front panel to reveal the fixing holes.
- 2 Insert the unit into the rack. Ensure that the four Cajun P330 screw holes are aligned with the rack hole positions as shown in Figure 4.1.

Figure 4.1 Cajun P330 Rack Mounting



- 3 Secure the unit in the rack using the screws. Use two screws on each side. Do not overtighten the screws.
- 4 Snap closed the hinged ends of the front panel.
- 5 Ensure that ventilation holes are not obstructed.

Connecting Stacked Switches



Note: The two ends of the Octaplane cable terminate with different connectors. Each connector can only be connected to its matching port.

The following cables are used to connect stacked switches:

- Short Octaplane cable (X330SC) – ivory-colored, used to connect adjacent switches (Catalog No. CB0223) or switches separated by a BUPS unit.
- Long Octaplane cable (X330LC) – ivory-colored, used to connect switches from two different physical stacks, or switches separated by a BUPS unit (Catalog No. CB0225).
- Redundant cable (X330RC) – black, used to connect the top and bottom switches of a stack (Catalog No. CB0222).

To connect stacked switches:

- 1 Plug the light grey connector of the Short Octaplane cable into the port marked “to upper unit” of the bottom Cajun P330 switch.
- 2 Plug dark grey connector of same Short Octaplane cable to the port marked “to lower unit” in the unit above. The connections are illustrated in Figure 4.3.
- 3 Repeat Steps 1 and 2 until you reach the top switch in the stack.



Note: If you have split the stack, use the Long Cable instead of the Short Cable where required.

- 4 If you wish to implement stack redundancy, use the Redundant Cable to connect the port marked “to lower unit” on the bottom switch to the port marked “to upper unit” on the top switch of the stack.



Caution: Do not cross-connect two Cajun P330 switches with two Octaplane (light-colored) cables. If you wish to cross-connect for redundancy, use one light-colored Octaplane cable and one black redundancy cable. Figure 4.2 shows an incorrect connection.



Note: You can build a stack of up to 10 Cajun P330 switches. If you do not wish to stack all the switches in a single rack, use long Octaplane cables to connect two physical stacks as shown in Figure 4.3.

Figure 4.2 *Incorrect Stack Connection*

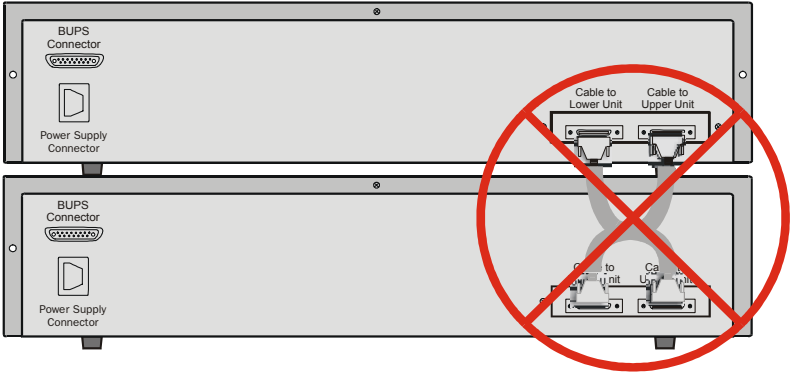
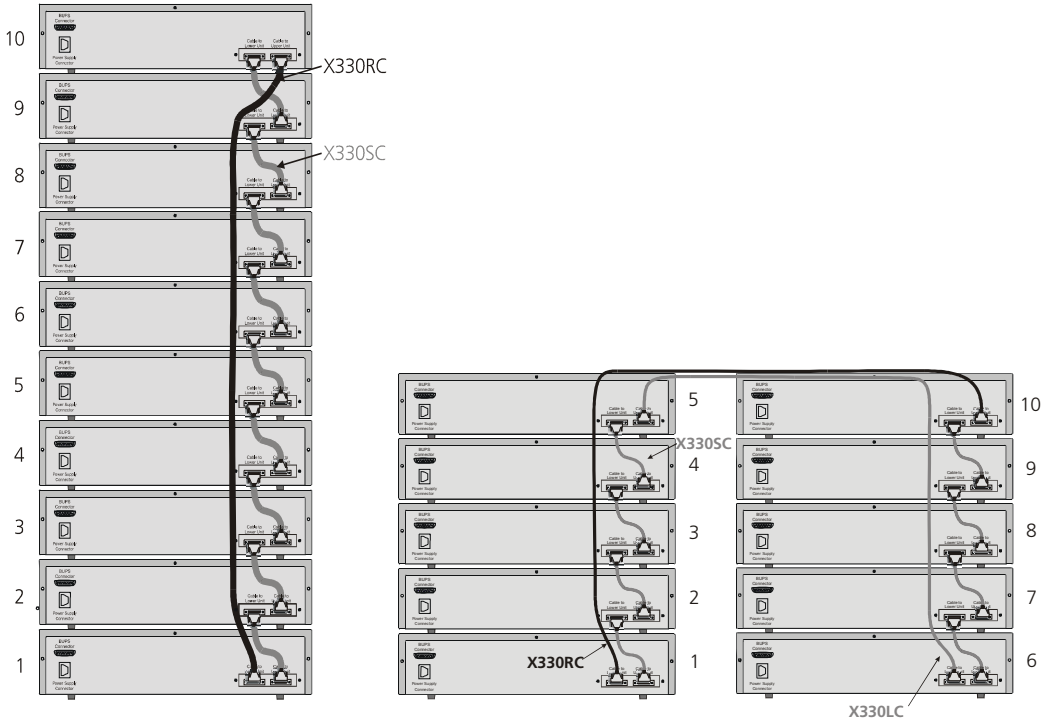


Figure 4.3 *Cajun P330 Stack Connections*



Installing Expansion Sub-modules



Caution: The expansion sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Installing the Expansion Sub-module into the Cajun P330

- 1 Remove the blanking plate or other sub-module (if installed).
- 2 Insert the sub-module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
- 3 Firmly press the sub-module until it is completely inserted into the Cajun P330.
- 4 Gently tighten the two screws on the front panel of the expansion sub-module by turning them.

Removing an Existing Expansion Sub-module

- 1 Loosen the screws by turning the knobs.
- 2 Take hold of the two knobs (one near each side of the front panel) and pull gently but firmly towards yourself.
- 3 Insert another expansion sub-module or the blanking plate.



Note: The Cajun P330 switch must not be operated with the expansion slot open; the expansion sub-module slot should be covered with the supplied blanking plate if necessary.



Note: Expansion sub-modules are hot-swappable and can be inserted or removed in an operating base unit.

Powering On – Cajun P330 Module AC

For the AC input version of the Cajun P330, insert the power cord into the power inlet in the back of the unit. The unit powers up.

- 1 If you are using a BUPS, insert a power cord from the BUPS into the BUPS connector in the back of the unit. The unit powers up.
- 2 After power up or reset, the Cajun P330 performs a self test procedure.

Powering On – Cajun P330 Module DC

For the DC input version of the Cajun P330, connect the power cable to the switch at the input terminal block.

- 1 The terminals are marked “+”, “-” and with the IEC 5019a Ground symbol.
- 2 The size of the three screws in the terminal block is M3.5.
- 3 The pitch between each screw is 9.5mm.



Warning: Before performing any of the following procedures, ensure that DC power is OFF.



Caution: This product is intended for installation in restricted access areas and is approved for use with 18 AWG copper conductors only. The installation must comply with all applicable codes.

- 4 Attach the appropriate lugs at the wire end of the power supply cord.
- 5 Wire the DC power supply to the terminal block.



Warning: The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last.

Configuring the Switch

The Cajun P330 may be configured using the text-based Command Line Interface (CLI) utility, the built-in Cajun P330 Device Manager (Embedded Web) or CajunView™.

For instructions on the text-based utility, see the CLI chapter.

For instructions on installation of the graphical user interfaces, see the Cajun P330 Device Manager Appendix. For instructions on the use of the graphical user interfaces, refer to the Manager User's Guide on the Management CD.

Cajun P330 Default Settings

The default settings for the Cajun P330 switch and its ports are determined by the Cajun P330 software. These default settings are subject to change in newer versions of the Cajun P330 software. See the Release Notes for the most up-to-date settings.

Switch Settings

Table 4.1 Default Switch Settings

Function	Default Setting
Cajun P330 IP address	149.49.32.134
Default gateway	0.0.0.0
VLANs	VLAN 1
Spanning tree	Enabled
Bridge priority for Spanning Tree	32768
NTP server IP address	0.0.0.0
Timezone offset	0 hours
Read-only SNMP community string	Public
Read-write SNMP community string	Public
Trap SNMP community string	Public
SNMP retries number	3
SNMP timeout	2000 Seconds
SNMP authentication trap	Disabled
CLI timeout	15 Minutes

Port Settings

Table 4.2 Default Port Settings

Function	Default Setting		
	10/100Base-TX ports	100Base-F ports	1000 Base-X ports
Duplex mode	Full duplex	Full duplex	Full duplex only
Speed mode	100M	100M	1000M
Flow control	Off	Off	Off
Flow control advertisement	Off	N/A	Off (No pause)
Backpressure	On (only in Half duplex)	Not Applicable	Not Applicable
Autopartitioning	Disabled (only in Half duplex)	N/A	N/A
Auto-negotiation	Enable	Not Applicable	Enable ¹
Administration status	Enable	Enable	Enable
Port VLAN	1	1	1
Tagging mode	Clear	Clear	Clear
Port priority	Regular	Regular	Regular
Spanning Tree cost	20	20	4
Spanning Tree port priority	128	128	128

¹Ensure that the other side is also set to Autonegotiation Enabled



Note: Functions operate in their default settings unless configured otherwise.

Cabling

Cajun P330 modules include the following types of ports (according to the speed and standard they support): 10Base-T, 100Base-TX, 100Base-FX, 1000Base-SX and 1000Base-LX.



Note: To interconnect Cajun P330 switches with twisted pairs, crossed cables are required.

- The maximum UTP cable length connected to a 10/100 Mbps port operating as 10Base-T, is 100 m (328 ft.).
- A UTP Category 5 cable must be connected to any 100Base-TX port, via an RJ45 connector. The maximum UTP cable length connected to a 10/100 Mbps port operating as 100Base-TX, is 100 m (328 ft.).
- A fiberoptic cable must be connected to any 100Base-FX port, via a pair of SC connectors. The maximum fiber cable length connected to a 100Base-FX port is 412 m (1,352 ft) when operating in half duplex, and 2 km (6,562 ft) when operating in full duplex.
- The maximum length of fiber optic cable connected to a 12 fiber MT-RJ port is 2 km (6,562 ft).

Appropriate cables are available from your local supplier.

Table 4.3 Gigabit Ethernet Cabling

Gigabit Interface	Fiber Type	Diameter (μm)	Modal Bandwidth	Maximum Distance (m)
1000BASE-SX	MM	62.5	160	220
1000BASE-SX	MM	62.5	200	275
1000BASE-SX	MM	50	400	500
1000BASE-SX	MM	50	500	550
1000BASE-LX	MM	62.5	500	550
1000BASE-LX	MM	50	500	550
1000BASE-LX	SM	9	NA	5,000
1000BASE-SLX	SM	9	NA	10,000

*1000BASE-LX over Multimode fiber requires a special Patch cord cable which you can obtain from your local cable supplier.

Connecting to the Serial Port

Cajun P330 has one serial port on the front of the switch for connecting a terminal, a terminal emulator, or a modem (future) using the supplied adapter.

The RJ-45 port on the front of the switch is labeled “Console”, and may be used to configure the switch using the built-in Command Line Interface (CLI, Terminal Emulation). In the future, this connector will also be used for out-of-band SNMP management, via a modem.

The port settings are as follows:

- Baud Rate - 9600 bps
- Character Size - 8
- Parity - None
- Stop Bit - 1
- Flow Control - None
- We recommend using a VT-100 terminal to enable access to all CLI features.

The terminal connected to the serial port must be configured with the same settings; this setting will work with any PC COM port over a DB9 to RJ45 connector.

Assigning Cajun P330's IP Stack Address



Note: All Cajun P330 switches are shipped with the same default IP address. In order to ensure that the stack has its own unique IP address in the network, you must change the IP address of the Master Cajun P330 switch in the stack .

Changing the IP Address using Command Line Interface (CLI, Terminal Emulation)

Use the CLI to assign the Cajun P330 stack an IP address and net mask. The CajunView station may establish communications with the stack once this address had been assigned and the stack inserted into the network.

- 1 Establish a serial connection by connecting a terminal to the Master Cajun P330 switch as described in the “Command Line Interface” chapter.
- 2 When the “Welcome to P330” menu appears and you are prompted for a Login Name, enter the default name **root**
- 3 When you are prompted for a password, enter the password **root**. You are now in Supervisor Level
- 4 At the prompt, type:
set interface inband <vlan> <ip_address> <netmask>
Replace **<vlan>**, **<ip_address>** and **<netmask>** with the VLAN, IP address and net mask of the stack.
- 5 Press Enter to save the IP address and net mask.
- 6 At the prompt, type **reset** and press Enter to reset the stack. After the Reset, log in again as described above.

- 7 At the prompt, type **set ip route <dest> <gateway>** and replace **<dest>** and **<gateway>** with the destination and gateway IP addresses.
- 8 Press Enter to save the destination and gateway IP addresses.



Note: If there are any errors, the new configuration settings will not be saved. To save the new configuration settings, you must correct the errors by repeating the command.

- 9 At the prompt, type **exit** to exit the CLI session.
- 10 Insert the Cajun P330 stack into your network.

Cajun Campus CLI - Architecture, Access & Conventions

This chapter describes the Cajun P330 CLI architecture and conventions, and provides instructions for accessing the Cajun P330 for configuration purposes.

The configuration procedure involves establishing a Telnet session or a serial connection and then using the Cajun P330's internal CLI. The CLI is command-line driven and does not have any menus. To activate a configuration option, you must type the desired command at the prompt and press Enter. You can also configure your Cajun P330 using the Cajun P330 Manager with its graphical user interface. For details, see the Cajun P330 Device Manager Appendix and the CajunView P330 Manager User Guide on the Management CD.

CLI Architecture

The P330 stack supports both Layer 2 switching and Layer 3 switching. The P333R CLI includes two CLI entities to support this functionality.

- The Switch CLI entity is used to manage Layer 2 switching of the entire stack. The Switch CLI entity is identical to the CLI of a P330 Layer 2 modules. CLI commands for managing Layer 2 switching are described in Chapter 6.
- The Router CLI entity is used to manage Layer 3 switching of a single module. The Router CLI entity exists only in P330R Layer 3 modules and supports different sets of commands depending on the device mode of the P333R module.

If the P333R module is the Master of the stack, then the Switch CLI entity and the Router CLI entity co-exist on the same module.

To switch between the entities, use the **session** command. Refer to Cajun P330 Sessions.

Initial access to the stack can be established via a serial connection or a Telnet connection to any one of the entities.

Establishing a Serial Connection

Perform the following steps to connect a terminal (physical or emulation) to the Cajun P330 Master Switch Console port for configuration of Stack or Router parameters:

- 1 Use the serial cable supplied to attach the RJ-45 console connector to any Console port of the Cajun P330 Master Switch. Connect the DB-9 connector to the serial (COM) port on your PC/terminal.
- 2 Ensure that the serial port settings on the terminal are 9600 baud, 8 bits, 1 stop bit and no parity.
- 3 When you see the “Welcome to Cajun P330” menu and are prompted for a Login Name, enter the default login. The default login is **root**.
- 4 When you are prompted for a password, enter the password **root**.
- 5 Now you can establish a connection to the Router or the Master switch (indicated when the SYS front panel LED is ON) using the Session commands (see Cajun P330 Sessions on Page 31 for details) and begin configuration of Stack or Router parameters.

Establishing a Telnet Connection

Perform the following steps to establish a Telnet connection to the Cajun P330 for configuration of Stack or Router parameters. You can Telnet either the Stack Master IP address or directly to one of the Router IP address:

- 1 Connect your station to the network.
- 2 Verify that you can communicate with the Cajun P330 using Ping to the IP of the Cajun P330. If there is no response using Ping, check the IP address and default gateway of both the Cajun P330 and the station



Note: The Cajun P330 default IP address is 149.49.32.134 and default subnet mask is 255.255.255.0.

- 3 From the Microsoft Windows® taskbar of your PC click **Start** and then **Run** (or from the DOS prompt of your PC), then start the Telnet session by typing:
telnet <Cajun_P330_IP_address> For example: **telnet 149.49.32.134**
- 4 If the IP Address in Telnet command is the IP address of the stack, then connection is established with the Switch CLI entity of the Master module. If you want to connect to the Router CLI entity, use the session command. If the IP address in the Telnet command is of the router, connection is established to the Router CLI entity in the router module. When you see the “Welcome to P330” menu and are prompted for a Login Name, enter the default name **root**
- 5 When you are prompted for a password, enter the password **root** in lower

case letters (do NOT use uppercase letters). The prompt will appear when you have established communications with the Cajun P330.

Command Line Prompt

When you start the CLI, the initial prompt shows the number of the Master module in the Cajun P330 stack. For example, if the stack Master is Module 5, counting from the bottom up, then the prompt is:

```
Cajun_P330-5>
```

In this document the Module number in the prompt is generic and is represented by “N”.

If you wish to open a session with a Cajun P333R routing module in the stack or reopen a session with the Master module, use the `session` command (see below).

The command prompt is *not* hierarchical in structure. If you wish to use several commands, each beginning with the same keyword, you must retype all parts of the command each time. For example, if after you want to set the system contact and the system name you must type both `set system contact` and `set system name`. However, you can use command abbreviations – see page 34.

Cajun P330 Sessions

You can use sessions to switch between P330 modules or to switch between Layer 2 and Layer 3 commands in the P333R CLI.

To switch between P330 modules use the command:

```
session [<mod_num>] <mode>
```

The `<mod_num>` is the number of the module in the stack, counting from the bottom up. The `<mode>` can be either **switch** or **router**. When Module Number is not specified, the command switches between the modes in the local module. Use **switch** mode to configure layer 2 and EZ2route commands. Use **router** mode to configure routing commands.

Examples:

To configure router parameters in the module that you are currently logged into, type the following command:

```
session router
```

To configure the switch parameters, on module 6, type the command:

```
session 6 switch
```



Note: When you use the `session` command the security level stays the same.

Security Levels

There are four security access levels – User, Privileged, Configure and Supervisor.

- The User level is a general access level used to show system parameter values.
- The Privileged level is used by site personnel to access stack configuration options.
- The Configure level is used by site personnel for Layer 3 configuration.
- The Supervisor level is used to define user names, passwords, and access levels of up to 10 local users.

A login name and password are always required to access the CLI and gain access to the commands. The login names and passwords, and security levels are established using the `username` command (see page 95).

Switching between the entities does not effect the security level since security levels are established specifically for each user. For example, if the operator with a privileged security level in the Switch entity switches to the Router entity the privileged security level is retained.

Entering the Supervisor Level

The Supervisor level is the level in which you first enter Cajun Campus CLI and establish user names for up to 10 local users. When you enter the Supervisor level, you are asked for a Login name. Type `root` as the Login name and the default password `root` (in lowercase letters):

```
Welcome to Cajun P330
```

```
Login: root
```

```
Password:****
```

```
Password accepted.
```

```
Cajun_P330-N(super) #
```

Defining new users

Define new users and access levels using the `username` command in Supervisor Level. (see page 95).

Exiting the Supervisor Level

To exit the Supervisor level, type the command `exit`.

Entering the CLI

To enter the CLI, enter your username and password. Your access level is indicated in the prompt as follows:

The User level prompt is shown below:

```
Cajun_P330-N>
```

The Privileged level prompt is shown below:

```
Cajun_P330-N#
```

The Configure level prompt for Layer 3 configuration is shown below:

```
Cajun_P330-N(configure) #
```

The Supervisor level prompt is shown below:

```
Cajun_P330-N(super) #
```

Entering the Technician Level

This level can only be accessed from the Privileged and Supervisor levels not from the User level.

This feature is not documented and is for use by Lucent Technical Support only.

Conventions Used

The following conventions are used in this chapter to convey instructions and information:

- Mandatory keywords are in boldface.
- Variables that you supply are in pointed brackets <>.
- Optional keywords are in square brackets [].
- Alternative but mandatory keywords are grouped in braces {} and separated by a vertical bar |.
- If you enter an alphanumeric string of two words or more, enclose the string in inverted commas.
- Information displayed on screen is displayed in `text` font.

Navigation, Cursor Movement and Shortcuts

The CLI contains a simple text editor with these functions:

Table 5.1 Navigation, Cursor Movement and Shortcuts

Keyboard	Functions
Backspace	Deletes the previous character
Up arrow/Down arrow	Scrolls back and forward through the command history buffer
Left arrow/Right arrow	Moves the cursor left or right
Tab	Completes the abbreviated command. Type the minimum number of characters unique to the command. An exception is the Reset System command which you must type in full.
Enter	Executes a single-line command
" "	If you type a name with quotation marks, the marks are ignored.

Getting Help

On-line help may be obtained at any time by typing a question mark (?), or the word **help** on the command line or by pressing the F1 key. To obtain help for a specific command, type the command followed by a space and a question mark.

Example: `Cajun_P330-N(super) # show?`

Command Syntax

Commands are not case-sensitive. That is, uppercase and lowercase characters may be interchanged freely.

Command Abbreviations

All commands and parameters in the CLI can be truncated to an abbreviation of any length, as long as the abbreviation is not ambiguous. For example, `version` can be abbreviated `ver`.

For ambiguous commands, type the beginning letters on the command line and then use the Tab key to toggle through all the possible commands beginning with these letters.

Universal Commands

Universal commands are commands that can be issued anywhere in the hierarchical tree.

Top and Up commands

The `Up` command moves you up to the next highest level in the CLI command hierarchy. The `Top` command moves you to the highest level.

Retstatus command

Use the `retstatus` command to show whether the last CLI command you performed was successful. It displays the return status of the previous command.

The syntax for this command is: **`retstatus`**

Output Example:

```
Cajun_P330-N# set port negotiation 2/4 disable
Link negotiation protocol disabled on port 2/4.
Cajun_P330-N# retstatus
Succeeded
```

Tree command

The `tree` command displays the commands that are available at your current location in the CLI hierarchy.

The syntax for this command is: **`tree`**

Cajun Campus CLI – Layer 2

This chapter provides instructions for the configuration of your Cajun P330 using the text-based Cajun Campus Command Line Interface (CLI or Terminal Emulation). You can also configure your Cajun P330 using the Cajun P330 Manager with its graphical user interface (see Appendix A).

The configuration procedure involves establishing a Telnet session or a serial connection and then using the Cajun P330's internal CLI. See Chapter 5 for instructions on how to establish a Telnet session or serial connection, and for a description of CLI conventions.

The CLI is command-line driven and does not have any menus. To activate a configuration option, you must type the desired command at the prompt and press Enter.

User Level Commands

This section describes all commands that are available from the User level.

Following is a table of the User Level commands and command groups (all commands are also available at the higher levels).

• session	Opens a session to another Cajun P330 module or X330 ATM Access module	Page 38
• terminal width	Display or set the width of the terminal display	Page 38
• terminal length	Display or set the length of the terminal display	Page 38
• clear screen	Clears the current terminal display	Page 39
• show ¹	Shows the current switch parameters	Page 39
• ping	Sends ICMP echo request packets to another node on the network	Page 39
• dir	Show files in the System	Page 60

¹ This command corresponds to a group of commands and is shown in a separate Table on Page 39

Session Command

Use the `session` command to open a session with a specific entity in a module of the stack. For example, you can open a session with the Routing entity of a Cajun P333R module in the stack, or with an the X330 ATM module entity plugged into a specific module.

The syntax for this command is:

session [`<mod_num>`] [`switch|router|atm`]

<code>mod_num</code>	(optional) Number of the module. If you do not specify this parameter, you will get the default entity of the stack (Layer 2 session to the Master)
<code>switch router atm</code>	(optional) The entity to which you want to open a session If you do not specify this parameter, you will get the default entity of the specific module: <code>switch</code> - Layer 2 entity of the module (see Note below) <code>router</code> - Cajun P333R Routing entity <code>atm</code> - X330 Access module ATM entity



Note: Layer 2 commands are only available if you open a `switch` session with the Master module.

Router commands are described in the Cajun P333R User's Guide.

Example:

```
Cajun_P330-N# session 2 router
```



Note: When you use the `session` command the security level stays the same.

Terminal Commands

Use the `terminal width` and `terminal length` commands to set the width and length of the terminal display in characters.

The syntax for this command is:

terminal `{width|length}` [`<characters>`]

Clear screen Command

The clear screen command clears the current terminal display.

The syntax for this command is:

clear screen

Ping Command

Use the `ping` command to send ICMP echo request packets to another node on the network.

The syntax for this command is:

ping [host[number]]

host	Host IP address/Internet address of route destination. If missing then the last host IP is used.
number	Number of packets to send. If missing then the last number is used



Note: You can use this command via the Master module only.

Example:

To ping the IP number 149.49.48.1 ten times:

```
Cajun_P330-N> ping 149.49.48.1 10
ping 149.49.48.1 10: 56 databytes
64 bytes from 149.49.48.1: icmp_seq=0. time=8 ms
```

Show Commands Summary Table

Following is a table of the `show` commands:

• <code>show time</code>	Show current time	Page 41
• <code>show timezone</code>	Show the current timezone offset	Page 41
• <code>show ntp</code>	Display the current Network Time Protocol (NTP) status and parameters	Page 41
• <code>show ip route</code>	Show IP routing table entries	Page 42
• <code>show image version</code>	Show the image version	Page 42
• <code>show snmp</code>	Show SNMP community strings	Page 43
• <code>show snmp retries</code>	Show SNMP retries number	Page 43
• <code>show snmp timeout</code>	Show SNMP timeout	Page 43

• show timeout	Show CLI timeout setting	Page 43
• show interface	Show the interfaces of the device	Page 44
• show port	Show settings and status for all ports	Page 45
• show port trap	Show port trap	Page 46
• show port channel	Show port channel	Page 46
• show port redundancy	Display information on redundancy schemes	Page 47
• show port mirror	Show mirroring info	Page 47
• show module	Show module	Page 47
• show flowcontrol	Show flowcontrol	Page 48
• show cam	Show CAM	Page 49
• show trunk	Show trunk (VLAN tagging)	Page 50
• show spantree	Show Spanning Tree Protocol (STP) setting	Page 51
• show autopartition	Shows the autopartition settings.	Page 53
• show license	Shows the license	Page 53
• show system	Show system parameters	Page 53
• show internal buffering	Show current internal buffering capacity	Page 54
• show intermodule port redundancy	Show the stack's intermodule redundancy	Page 54
• show rmon statistics	Show the traffic statistics of an interface	Page 55
• show rmon history	Show the existing history entries	Page 55
• show rmon alarm	Shows the existing alarm entries	Page 56
• show rmon event	Shows the existing event entries	Page 56
• show tftp upload/download status	Show status of the TFTP upload/download configuration per module	Page 57
• show tftp download software status	Show status of the TFTP software download of the Device Manager software to the module	Page 57
• show web aux-files-url	Show the location (url/directory) of the Cajun P330 Device Manager Help files	Page 57

• <code>show intelligent multicast</code>	Shows the status IP multicast filtering application	Page 58
• <code>show intelligent multicast hardware support</code>	Shows whether the connected unit's hardware supports IP multicast filtering	Page 58
• <code>show secure mac</code>	Shows the secure MAC addresses of a port	Page 59
• <code>show security mode</code>	Displays the status of the MAC security feature (enabled/disabled)	Page 59
• <code>show port security</code>	Lists the security mode of the ports of a module or stack.	Page 59

Show time Command

Use the `show time` command to display the current stack time.

The syntax for this command is:

`show time`

Example:

```
Cajun_P330-N> show time
10:32:34 27 JAN 2000 GMT
```

Show timezone Command

Use the `show timezone` command to display the current stack timezone.

The syntax for this command is:

`show timezone`

Example:

```
Cajun_P330-N> show timezone
Timezone set to 'GMT', offset from UTC is 0 hours
```

Show ntp Command

Use the `show ntp` command to display the address of the Network Time Protocol (NTP) server in addition to other time related status information.

The syntax for this command is:

`show ntp`

Example:

```
Cajun_P330-N> show ntp
Current time: 10:37:04 27 JAN 2000 GMT
Timezone set to 'GMT', offset from UTC is 0 hours
NTP-Server: 149.49.52.134
```

Show ip route Command

Use the `show ip route` command to display IP routing table entries.

The syntax for this command is:

show ip route

Example:

```
Cajun_P330-N> show ip route
```

Destination	Gateway
-----	-----
149.49.1.1	172.20.22.201
190.20.0.0	172.20.22.202
172.20.0.0	172.20.22.96

Show image version Command

Use the `show image version` command to display the software version of the image on both memory banks of a specified module.

The syntax for this command is:

show image version [<mod_num>]

If no module number is specified, the image version of the all modules will be displayed.

Example:

```
Cajun_P330-N> show image version 1
```

Mod	Module-Type	Bank	Version
-----	-----	-----	-----
1	12x100Base-F (MT-RJ) with optional expansion slot	A	3.0.4
1	12x100Base-F (MT-RJ) with optional expansion slot	B	3.0.4

Show snmp Command

Use the `show snmp` command to display SNMP information.

The syntax for this command is:

show snmp

Example:

```
Cajun_P330-N> show snmp
Authentication trap disabled
```

Community-Access	Community-String
-----	-----
read-only	public
read-write	public
trap	public

Trap-Rec-Address	Traps Enabled
-----	-----
1.1.1.1	config
	fault
	etc...

Show snmp retries Command

Use the `show snmp retries` command to display the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

show snmp retries

Example:

```
Cajun_P330-N> show snmp retries
the SNMP Retries Number is 3
```

Show snmp timeout Command

Use the `show snmp timeout` command to display the default SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

show snmp timeout

Example:

```
Cajun_P330-N> show snmp timeout  
the SNMP Timeout is 2000
```

Show timeout Command

Use the `show timeout` command to display the amount of time the CLI can remain idle before timing out in minutes. If the result is 0, there is no timeout limit.

The syntax for this command is:

show timeout

Example:

```
Cajun_P330-N> show timeout  
CLI timeout is 10 minutes
```

Show interface Command

Use the `show interface` command to display information on network interfaces.

The syntax for this command is:

show interface

Example:

To display the interface:

```
Cajun_P330-N> show interface
```

Interface Name	VLAN	IP address	Netmask
inband	1	149.49.42.252	255.255.255.0
ppp	1	0.0.0.0	0.0.0.0

Show port Command

Use the `show port` command to display port status.

The syntax for this command is:

show port [`<mod_num>`[/`<port_num>`]]

`mod_num` (Optional) Number of the module. If you do not specify a number, the ports on all modules are shown.

`port_num` (Optional) Number of the port on the module. If you do not specify a number, all the ports on the module are shown. You can also specify a range of ports separated by a dash, e.g. 5-13 for ports 5 to 13.

Example:

To display the status for port 4 on module 3:

Cajun_P330-N> show port 3/4

Port	Name	Status	Vlan	Level	Neg	Dup.	Spd.	Type
3/4	John	connected	1	normal	enable	half	10M	10/100Base-Tx

Show Port Output Fields

Field	Description
Port	Module and port number
Name	The name you assigned to the port
Status	Status of the port (connected, faulty, disabled)
VLAN	VLAN ID of the port
Level	Priority level of the port (normal or high)
Neg	The autonegotiation status of the port (enable, disable)
Duplex	Duplex setting for the port (fdx, hdx)
Speed	Speed setting for the port (10, 100).
Type	Port type, for example, 10BaseT, 10BaseFL, 100BaseTX, 100BaseFX MM, 100BaseFX SM, 10/100BaseTX

Show port trap Command

Use the `show port trap` command to display information on SNMP generic link up/down traps sent for a specific port.

The syntax for this command is:

show port trap [`<mod_num>`[/`<port_num>`]]

Example:

```
Cajun_P330-N> show port trap 1/1
```

```
Port 1/1 up/down trap is disabled
```

Show port channel Command

Use the `show port channel` command to display Link Aggregation Group (LAG) information for a specific module or port.

The syntax for this command is:

show port channel [`<mod_num>`[/`<port_num>`]]

Example:

```
show port channel 1
```

Port	Channel	Status	Channel Name
------	---------	--------	--------------

1/1	off		
1/2	off		
1/3	on		server1
1/4	on		server1
1/13	off		
1/14	off		
1/15	off		
1/16	off		
1/5	off		
etc...			



Note: Ports are listed and grouped according to the possible LAG membership.

Show port redundancy Command

Use the `show port redundancy` command to display information about all redundancy schemes defined for this stack.

The syntax for this command is:

show port redundancy

Example:

```
Cajun_P330-N> show port redundancy
```

Redundancy Name	Primary Port	Secondary Port	Status
-----	-----	-----	-----
uplink	1/7	2/12	enable

Show port mirror Command

Use the `show port mirror` command to display mirroring information for the stack.

The syntax for this command is:

show port mirror [`<mod_num>[/<port_num>]`]

Example:

```
Cajun_P330-N> show port mirror
port mirroring
```

Mirroring both Rx and Tx packets from port 1/2 to port 1/4 is enabled

Show module Command

Use the `show module` command to display module status and information. For each module with an expansion sub-module installed, both module and sub-module type and information are shown.

The syntax for this command is:

show module [`<mod_num>`]

`mod_num` (Optional) Number of the module. If you do not specify a number, all modules are shown.

Example:

```
Cajun_P330-N> show module
Mod Type          Ports Serial-Num C/S Sw      Boot Ver
---  -
1   CajunP332MF   12    4171661    1.1 2.0.3   0.0.0

Mod Sub-Type          Sub-Ports Sub-C/S
---  -
1   CajunX330S2      2        1.1
```

Output Fields

Field	Description
Mod	Module number
Module-Type/Sub-Type	Module Type/Expansion sub-module type
Ports/Sub-Ports	Number of ports on the module/Expansion sub-module.
Serial-Num	Serial number of the module
C/S / Sub-C/S	(Hardware) Configuration Symbol of the module/Expansion sub-module
Sw	Software version loaded into the module
Boot Ver	Boot software version loaded into the module

Show flowcontrol Command

Use the `show port flowcontrol` command to display per-port status information related to flow control.

The syntax for this command is:

```
show flowcontrol [<mod_num>[/<port_num>]]
```

Example:

```
Cajun_P330-N> show flowcontrol 3/2
Port   Send-Flowcontrol Receive-Flowcontrol
      Admin Oper      Admin Oper
-----
3/2   off   off             off   off
```

Output Fields

Field	Description
Port	Module and port number
Send-Flowcontrol-Admin	Send flow-control administration. Possible settings: • ON indicates that the local port is allowed to send flow control frames to the far end. • OFF indicates that the local port is <i>not</i> allowed to send flow control frames to the far end.
Send-Flowcontrol-Oper	Send flow-control operation mode. Possible modes: • ON indicates that the local port will send flow control frames to the far end. • OFF indicates that the local port will <i>not</i> send flow control frames to the far end.
Receive-Flowcontrol-Admin	Receive flow-control administration. Possible settings: • ON indicates that the local port will act upon flow control indications if received from the far end. • OFF indicates that the local port will discard flow control frames if received from the far end.
Receive-Flowcontrol-Oper	Receive flow-control operation mode. Possible modes: • ON indicates that the local port will act upon flow control indications received from the far end. • OFF indicates that the local port will discard flow control frames received from the far end.

Show cam Commands

Use the `show cam` commands to display the CAM table entries for a specific port or MAC Address.

The syntax for this command is:

```
show cam [<mod_num>[/<port_num>]]
```

and

```
show cam mac <mac_addr>
```

Example:

```
Cajun_P330-N> show cam 1/1
Dest MAC/Route Dest Destination Ports
-----
00-40-0d-59-03-78 1/1
00-d0-79-0a-0a-da 1/1
00-40-0d-43-1e-e9 1/1
etc...

Cajun_P330-N> show cam mac 00-40-0d-88-06-c8
Dest MAC/Route Dest Destination Ports
-----
00-40-0d-88-06-c8 1/1
Total Matching CAM Entries Displayed = 1
```

Show trunk Command

Use the `show trunk` command to display VLAN tagging information of the ports.

The syntax for this command is:

show trunk [`<mod_num>`[/`<port_num>`]]

Example:

```
Cajun_P330-N> show trunk 1/22
show trunk 1/22
Port   Mode  Native vlan Vlan allowed on trunk
-----
1/22   dot1q 1           1-3071
```

Following are the `show trunk` command output fields:

Field	Description
Port	Module and port number(s)
Mode	Tag status of the port (ON - dot1Q tagging mode, OFF - clear mode).
Native VLAN	Number of the Port VLAN ID (the VLAN to which received untagged traffic will be assigned). If the Port is in “clear mode” only frames of this VLAN will be transmitted.
VLANs allowed on trunk	Range of values allowed for the Native VLAN (1 to 3071)

Show spantree Command

Use the `show spantree` command to display spanning-tree information.

The syntax for this command is:

show spantree [`<mod_num>`[/`<port_num>`]]

Example:

```
Cajun_P330-N> show spantree
Spanning tree enabled
```

```
Designated Root: 00-40-0d-88-06-c8
Designated Root Priority: 32768
Designated Root Cost: 20
Designated Root Port: 1/1
Root Max Age: 20 Hello Time: 2
```

```
Bridge ID MAC ADDR: 00-40-0d-92-04-b4
Bridge ID priority: 32768
```

Port	State	Cost	Priority
1 /1	Forwarding	20	128
1 /2	not-connected	20	128
1 /3	LAG-member	20	128
1 /4	LAG-member	20	128
1 /5	not-connected	20	128

```
1 /6 not-connected 20 128  
etc...
```

Output Fields:

Field	Description
Spanning tree	Status of whether Spanning-Tree Protocol is enabled or disabled.
Designated Root	MAC address of the designated spanning-tree root bridge
Designated Root Priority	Priority of the designated root bridge
Designated Root Cost	Total path cost to reach the root
Designated Root Port	Port through which the root bridge can be reached (shown only on nonroot bridges).
Root Max Age	Amount of time a BPDU packet should be considered valid.
Hello Time	Number of times the root bridge sends BPDUs.
Bridge ID MAC ADDR	Bridge MAC address used in the sent BPDUs.
Bridge ID Priority	Bridge priority
Port	Port number
State	Spanning-tree port state (disabled, inactive, not-connected, blocking, listening, learning, forwarding, bridging, or type-pvid-inconsistent).
Cost	Cost associated with the port.
Priority	Priority associated with the port.

Show autopartition Command

Use the show autopartition command to display the automatic partition.

The syntax for this command is:

show autopartition

Example:

```
Cajun_P330-N> show autopartition
```

Auto-partition is enabled.

Show license Command

Use the show license command to display a module license.

The syntax for this command is:

show license [module]

module module number

Example:

```
Cajun_P330-N> show license 1
```

```
Cajun_P330-N> Module 1 License:
```

Application	License Key
-----	-----
SMON	0000 0000 0000 0000 0000 0000

Show system Command

Use the show system command to display the up time, system name, location, and contact person.

The syntax for this command is:

show system

Example:

```
Cajun_P330-N> show system
```

```
Uptime d,h:m:s
```

```
-----
```

```
0,2:40:55
```

System Name	System Location	System Contact
-----	-----	-----
P330T_version_2.0.3	Alpha LAB	Ygdal Naouri

```
Switch MAC address
-----
00 40 0d 8a 04 b4

Module      Main      Backup      Main      Backup PS
Number Power Supply Power Supply Fans      Fans
-----
1          active          n/a          ok          n/a
```

Show internal buffering Command

This shows the size options (Maximum, Minimum, or Dynamic) of the Receive (Rx) buffer allocated to each port of the specified module.

The syntax for this command is:

```
show internal buffering [<mod_num>]
```

Example:

```
Cajun_P330-N> show internal buffering 1
Module  Internal Buffer
-----  -
1          dyn
```

Show intermodule port redundancy Command

Use the show intermodule redundancy command to to display the intermodule redundancy entry defined for the stack.

The syntax for this command is:

```
show intermodule port redundancy
```

Example:

```
Cajun_P330-N> show intermodule port redundancy
Primary-Port          : 1/1
Primary-Port status   : Disable

Secondary-Port        : 1/2
Secondary-Port status : Disable
```

RMON Tools

Following are a series of RMON commands, however we recommend using the Cajun P330 Device Manager.

Show rmon statistics Command

This command shows the RMON statistics counters for a certain interface number according to the MIB-2 interface table numbering scheme.

The syntax for this command is:

show rmon statistics <Interface Number>

Example:

```
Cajun_P330-N> show rmon statistics 1026
```

```
statistics
```

```
Interface 1026 is active, owned by Monitor  
Monitors ifEntry.1.1026 which has  
Received 26375085 octets, 222536 packets,  
154821 broadcast and 53909 multicast packets,  
0 undersize and 0 oversize packets,  
0 fragments and 0 jabbers,  
1 CRC alignment errors and 0 collisions,  
# of dropped packet events (due to a lack of resources): 0  
# of packets received of length (in octets):  
64:94530, 65-127:85124, 128-255:25896,  
256-511:10440, 512-1023:6057, 1024-1518:489,
```

Show rmon history Command

This command shows the most recent RMON history log for a given History Index. The history index is defined using the `rmon history` command on Page 89 or using an RMON management tool.

The syntax for this command is:

show rmon history [<History Index>]

Example:

```
Cajun_P330-N> show rmon history 1026
```

```
history
```

```
Entry 1026 is active, owned by amir
```

```
Monitors ifEntry.1.1026 every 30 seconds
Requested # of time intervals, ie buckets, is 20
Granted # of time intervals, ie buckets, is 20
Sample # 1 began measuring at 2:53:9
Received 62545 octets, 642 packets,
391 broadcast and 145 multicast packets,
0 undersize and 0 oversize packets,
0 fragments and 0 jabbers,
0 CRC alignment errors and 0 collisions,
# of dropped packet events (due to a lack of resources): 0
Network utilization is estimated at 0
```

Show rmon alarm Command

This command shows the parameters set for a specific alarm entry that was set using the rmon alarm command on Page 90 or using the Cajun P330 Device Manager.

The syntax for this command is:

```
show rmon alarm [<Alarm Index>]
```

Example:

```
Cajun_P330-N> show rmon alarm 1026
alarm

alarm 1026 is active, owned by amir
Monitors ifEntry.1.1026 every 60 seconds
Taking delta samples, last value was 1712
Rising threshold is 10000, assigned to event # 1054
Falling threshold is 10, assigned to event # 1054
On startup enable rising or_falling alarms
```

Show rmon event Command

This command shows the parameters of an Event entry defined by the rmon event command on Page 91 or using the Cajun P330 Device Manager.

The syntax for this command is:

```
show rmon event [<Event Index>]
```

Example:

```
Cajun_P330-N> show rmon event 1054
event
```

```
Event 1054 is active, owned by amir
Description is event for monitoring amir's co
Event firing causes log and trap to community public,last fired 0:0:0
```

Show tftp download/upload status Command

Use the `show tftp download status` and `show tftp upload status` commands to display the status of the current TFTP configuration file copy process into/from the device.

The syntax for this command is:

```
show tftp {download|upload} status [<mod_num>]
```

Example:

```
Cajun_P330-N> show tftp upload status 1
Module           : 1
Source file      : stack-config
Destination file : c:\conf.cfg
Host             : 149.49.36.200
Running state    : Executing
Failure display  : (null)
Last warning     : No-warning
```

Show tftp download software status Command

Use the `show tftp download software status` commands to display the status of the current TFTP Device Manager S/W (Embedded Web) download process into the device.

The syntax for this command is:

```
show tftp download software status [<mod_num>]
```

Show web aux-files-url Command

Use the `show web aux-files-url` command to display the URL/Directory from where the Cajun P330 can access the Device Management auxiliary files (for example help files).

The syntax for this command is:

```
show web aux-files-url
```

Show intelligent-multicast command

Use the show intelligent-multicast Command to display the intelligent multicast configuration.

The syntax for this command is:

show intelligent-multicast

Example:

```
Cajun_P330-N> show intelligent-multicast
```

```
Intelligent-multicast configuration:
```

```
-----  
intelligent-multicast state ----- Disabled  
Intelligent-multicast client-port-pruning time --- 600[Sec]  
Intelligent-multicast router-port-pruning time ---1800[Sec]  
intelligent-multicast group-filtering-delay time - 10[Sec]  
Intelligent-multicast HW configuration:  
#   Module                Sub-Module                Cascade  
-----  
1 No IPMc Support      Not Installed            No IPMc Support
```

Show intelligent-multicast hardware-support Command

Use the show intelligent-multicast hardware-support command to display the intelligent multicast hardware support configuration.

The syntax for this command is:

show intelligent-multicast hardware-support

Example:

```
Cajun_P330-N> show intelligent-multicast hardware support
```

```
Intelligent-multicast HW configuration:
```

```
#   Module                Sub-Module                Cascade  
-----  
1 No IPMc SupportNot Installed            No IPMc Support
```

Show secure mac Command

Use the `show secure mac` command to display the secure MAC addresses of a port from the sub-agent CLI. This command is accessed only through connection to a particular module.

The syntax for this command is:

show secure mac port <mod-num>/<port-num>

Example:

```
Cajun_P330-N> show secure mac port 1
```

Port	Secure-Src-Addrs
-----	-----
1/17	00-50-04-07-6a-fa
	01-02-03-04-05-06

Show security mode Command

Use the `show security mode` command to display the status of the MAC security feature.

The syntax for this command is:

show security mode

Example:

```
Cajun_P330-N> show security mode
```

Security mode enabled.

Show port security Command

Use the `show port security` command to list the security mode of the ports of a module or stack. When no port number is specified, this command displays all the secured ports in the stack.

The syntax for this command is:

show port security [<module>[/<port>]]

Example:

```
Cajun_P330-N> show port security 1
```

Port 1/1 port security disabled.

Port 1/2 port security disabled.

Port 1/3 port security disabled.

Port 1/4 port security disabled.
Port 1/5 port security disabled.
Port 1/6 port security disabled.
Port 1/7 port security disabled.
Port 1/8 port security disabled.
Port 1/9 port security disabled.
Port 1/10 port security disabled.
Port 1/11 port security disabled.
etc.

Dir Command

The `dir` command is used to show the file types that have been downloaded to the module.

The syntax for this command is:

dir [<mod_num>]

Example:

```
Cajun_P330-N> dir
M# file                ver num  file type    file location  file description
-- ----                -
1  module-config       N/A      Running Conf  Ram            Module Configuration
1  stack-config        N/A      Running Conf  Ram            Stack Configuration
1  EW_Archive          N/A      SW Web Image  Nv-Ram         WEB Download
```



Note: The message “**Operation Failed**” appears when the `dir` command is entered for the lowest module on a stack.

Output Fields:

Field	Description
M#	Module number

file	There are several files loaded into modules memory: • module-config – file which contains the configuration settings made to this module. • stack-config – file which contains the configuration settings made at the stack level (for example IP address of the stack) • EW_Archive – file which contains the Device Manager (Embedded Web) software.
ver num	S/W Version number – relevant only for the Device Management S/W
file type	There are several file types: • Running Conf – the configuration currently in use. This is also the startup configuration in the Cajun P332MF. • SW Web Image – Device Manager S/W archive file
file location	Type of internal memory into which the file is loaded
file description	Description of the file



Note: If the N/A is displayed for the EW_Archive file this means that the Device Manager S/W is not loaded correctly. Download the Device Manager S/W again.

Privileged Level Commands

Following is a table of the Privileged Level commands. This level includes all the commands from the User Level described above (see the User Level Commands Section for a description of these common commands).

• no hostname	Return the prompt to its default	Page 63
• no rmon history	Deletes an existing history entry	Page 63
• no rmon alarm	Deletes an existing alarm entry	Page 63
• no rmon event	Deletes an existing event entry	Page 63
• hostname	Displays or sets a new prompt	Page 64
• clear ¹	Clears current settings (group of commands)	Page 64
• set ²	Set the module parameters (group of commands)	Page 67
• sync time	Synchronizes the time between modules	Page 85
• get time	Gets the time from the time server	Page 88
• reset	Restarts the system or a module	Page 88
• nvram initialize	Initialize the NVRAM to its factory defaults	Page 89
• configure	Currently not used in the Layer 2 CLI.	Page 89
• tech	Enter Technician level – Lucent personnel only	–
• rmon history	Creates a history entry	Page 89
• rmon alarm	Creates an alarm entry	Page 90
• rmon event	Creates an event entry	Page 91
• copy stack- config tftp	Upload stack configuration to a file (using tftp). The file must exist before you Upload.	Page 91
• copy module- config tftp	Upload module configuration to a file (using tftp). The file must exist before you Upload.	Page 92
• copy tftp stack-config	Download a stack configuration file (using TFTP) into the device	Page 93

- | | | |
|--|--|---------|
| • <code>copy tftp module-config</code> | Download a module configuration file (using TFTP) | Page 93 |
| • <code>copy tftp EW_Archive</code> | Download the Device Manager S/W (Embedded Web Archive file), using TFTP, into the device | Page 94 |
| • <code>copy tftp SW_image</code> | Updates the software image and device manager application of a designated module | Page 94 |
- 1 The `clear` command corresponds to a group of commands and is shown in a separate Table on Page 64.
 - 2 The `set` command corresponds to a group of commands and is shown in a separate Table on Page 67.

No hostname Command

Use the `no hostname` command to return the CLI prompt to its default.

The syntax for this command is:

`no hostname`

No rmon history Command

Use the `no rmon history` command to delete an existing RMON history entry.

The syntax for this command is:

`no rmon history <History Index>`

No rmon alarm Command

Use the `no rmon alarm` command to delete an existing RMON alarm entry.

The syntax for this command is:

`no rmon alarm <Alarm Index>`

No rmon event Command

Use the `no rmon event` command to delete an existing RMON event entry.

The syntax for this command is:

`no rmon event <Event Index>`

Hostname Command

Use the `hostname` command to change the Command Line Interface (CLI) prompt. The current module number always appears at the end of the prompt.

The syntax for this command is:

hostname [`<hostname_string>`]

`hostname_string` **none** – displays current hostname
 string – the string to be used as the hostname (up to 20 characters).

Clear Commands Summary Table

Following is a Table of the Privileged Level `clear` commands.

• <code>clear timezone</code>	Returns the timezone to its default, UTC	Page 64
• <code>clear ip route</code>	Clear IP routing table entries	Page 64
• <code>clear snmp trap</code>	Clear SNMP trap on the system	Page 65
• <code>clear vlan</code>	Clears VLAN entries	Page 65
• <code>clear cam</code>	Clears all the CAM entries	Page 66
• <code>clear log</code>	Clears the Log entries of a module	Page 66
• <code>clear port mirror</code>	Cancel port mirroring	Page 66
• <code>clear secure mac</code>	Clear a MAC address	Page 66

Clear timezone Command

Returns the timezone to its default, Coordinated Universal Time (UTC)

Clear ip route Command

Use the `clear ip route` command to delete IP routing table entries.

The syntax for this command is:

clear ip route `<destination>` `<gateway>`

`destination` IP address of the network, or specific host to be added
`gateway` IP address of the router.

Example:

To delete the route table entries using the clear ip route command:

```
Cajun_P330-N# clear ip route 134.12.3.0 192.1.1.1
Route deleted.
```

Clear snmp trap Command

Use the `clear snmp trap` command to clear an entry from the SNMP trap receiver table.

The syntax for this command is:

```
clear snmp trap {<rcvr_addr>|all}
```

rcvr_addr IP address or IP alias of the trap receiver (the SNMP management station) to clear.

all Keyword that specifies every entry in the SNMP trap receiver table

Example:

```
Cajun_P330-N# clear snmp trap 192.122.173.82
SNMP trap receiver deleted.
```

Clear vlan Command

Use the `clear vlan` command to delete an existing VLAN and return ports from this VLAN to the default VLAN #1. When you clear a VLAN, all ports assigned to that VLAN are assigned to the default VLAN #1.

The syntax for this command is:

```
clear vlan [VLAN_num]
```

VLAN_num Number of the VLAN (range is 1 to 3071).

Example:

This example shows how you can delete an existing VLAN (VLAN 4) from a management domain:

```
Cajun_P330-N# clear vlan 4
```

This command will assign all ports on VLAN 4 to their default in the entire management domain

```
Do you want to continue (y/n) [n]? y
```

```
VLAN 4 deletion successful
```

Clear cam Command

Use the `clear cam` command to delete all entries from the CAM table.

The syntax for this command is:

clear cam

Example:

```
Cajun_P330-N# clear cam
CAM table entry cleared.
```

Clear log Command

Use the `clear log` command to delete the Log file of a module.

The syntax for this command is:

clear log [<mod_num>]

Clear port mirror Command

Use the `clear port mirror` command to cancel port mirroring.

The syntax for this command is:

clear port mirror <source-module>/<source-port>/<dest-module>/<dest-port>

Example:

```
Cajun_P330-N# clear port mirror 1/2/1/4
this command will delete the port mirror entry
- do you want to continue (Y/N)? y
Mirroring packets from port 1/2 to port 1/4 is cleared
```

Clear secure mac Command

Use the `clear secure mac` command to remove a MAC address from the CAM table of a secured port.

The syntax for this command is:

clear secure mac <mac-address> **port** <mod-num>/<port-num>

Example:

```
Cajun_P330-N> clear secure mac 1-2-3-4-5 port 1/17
01-02-03-04-05 cleared from secure address list for port 1/17
```

Set Commands Summary Table

Following is a Table of the Privileged Level `set` commands.

• <code>set logout</code>	Set the number of minutes before an inactive CLI session automatically logs out	Page 69
• <code>set timezone</code>	Set the timezone for the system	Page 70
• <code>set ntp server</code>	Set the NTP server address	Page 70
• <code>set ip route</code>	Add IP addresses to the IP routing table	Page 70
• <code>set snmp trap</code>	Set the SNMP trap of the system or add/delete an entry into/from the SNMP trap receiver table	Page 71
• <code>set snmp trap auth</code>	Enable/Disable the SNMP authentication trap	Page 72
• <code>set snmp retries</code>	Set the number of SNMP retries	Page 72
• <code>set snmp timeout</code>	Set the SNMP timeout	Page 73
• <code>set system location</code>	Set the system location	Page 73
• <code>set system name</code>	Set the system name	Page 73
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Set logout Command

The `set logout` command is used to set the number of minutes until the system automatically disconnects an idle session.

The syntax for this command is:

set logout <timeout>

timeout	Number of minutes (0 to 999) until the system automatically disconnects an idle session. Setting the value to 0 disables the automatic disconnection of idle sessions (default is 15 minutes).
---------	--

Example:

To set the number of minutes until the system disconnects an idle session automatically:

```
Cajun_P330-N# set logout 20
```

Sessions will be automatically logged out after 20 minutes of idle time.

To disable the automatic disconnection of idle sessions:

```
Cajun_P330-N# set logout 0
```

Sessions will not be automatically logged out.

Set timezone Command

Use the `set timezone` command to assign a timezone name and set the time difference of your Cajun P330 relative to the Coordinated Universal Time (UTC/GMT). The minutes parameter can only be set to 30.

The syntax for this command is:

```
set timezone <zone_name> [-]<hours>[:30]
```

Example:

```
set timezone GMT -3:30
```

```
Timezone set to 'GMT', offset from UTC is -3:30 hours
```

Set ntp server Command

The `set ntp server` command is used to set the NTP server address.

The syntax for this command is:

```
set ntp server <ip>
```

<code>ip</code>	IP address of the ntp server.
-----------------	-------------------------------

Set ip route Command

Use the `set ip route` command to add IP addresses to the IP routing table. You can configure from one to ten (10) default gateways for a Cajun P330 stack.

The syntax for this command is:

```
set ip route <destination> <gateway>
```

<code>destination</code>	IP address of the network, or specific host to be added
--------------------------	---

<code>gateway</code>	IP address of the router.
----------------------	---------------------------

Example:

This example shows how to add a default route to the IP routing table:

```
Cajun_P330-N# set ip route 149.49.42.54 149.49.42.200
destination = 149.49.42.54 gateway = 149.49.42.200
```

ROUTE NET TABLE

destination	gateway	flags	Refcnt	Use	Interface
149.49.42.0	149.49.42.205	1	1	3199	se0
127.1.1.0	127.1.1.1	1	8	7606	se1

ROUTE HOST TABLE

destination	gateway	flags	Refcnt	Use	Interface
127.0.0.1	127.0.0.1	5	2	131	lo0
149.49.42.54	149.49.42.200	7	0	0	se0

Set snmp trap Commands

Use the `set snmp trap` commands to add an entry into the SNMP trap receiver table and to enable or disable the different SNMP traps for a specific receiver. First add the `rcvr_addr` and then enable/disable the different traps for it.

The syntax for this command is:

```
set snmp trap <rcvr_addr>
```

```
set snmp trap <rcvr_addr> {enable|disable} {all|config|fault|...}
```

enable	Activate SNMP traps
disable	Deactivate SNMP traps
all	(Optional) Specify all trap types
config	(Optional) Specify the ConfigChange trap from the TRAP-MIB.
fault	(Optional) Specify the Fault trap from the TRAP-MIB.
rcvr_addr	IP address or IP alias of the system to receive SNMP traps

Example:

To enable SNMP ConfigChange traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 enable config
SNMP config change traps enabled.
```

To enable all traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 enable all
All SNMP traps enabled.
```

To disable SNMP config traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 disable config
SNMP config traps disabled.
```

To add an entry in the SNMP trap receiver table with default:

```
Cajun_P330-N# set snmp trap 192.122.173.42
SNMP trap receiver added.
```

Set snmp trap auth Command

Use the `set snmp trap auth` commands to enable/disable the sending of SNMP traps upon SNMP authentication failure.

The syntax for this command is:

```
set snmp trap {enable|disable} auth
```

Example:

```
Cajun_P330-N# set snmp trap enable auth
Authentication trap enabled
```

Set snmp retries Command

Use the `set snmp retries` command to set the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

```
set snmp retries <number>
```

Set snmp timeout Command

Use the `set snmp timeout` command to set the SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

```
set snmp timeout <number>
```

Set system location Command

Use the `set system location` command to set the mib2 system location MIB variable.

The syntax for this command is:

```
set system location [<string>]
```

string	Location name. The location name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Operations Floor”.
--------	---

Set system name Command

Use the `set system name` command to set mib2 system name MIB variable.

The syntax for this command is:

```
set system name [<string>]
```

string	System name. The system name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Backbone Stack”.
--------	---

Set system contact Command

Use the `set system contact` command to set mib2 system contact MIB variable.

The syntax for this command is:

```
set system contact [<string>]
```

string	Contact person. The contact person field is cleared if this field is blank. A string of 2 words or more must be type in quotation marks – e.g. “Ygdal Naouri”.
--------	--

Set interface Command

Use the `set interface` command to configure the management interface on the Master agent of the stack.

The syntax for this command is:

```
set interface inband <vlan> <ip_addr> <netmask>
```

inband	Interface name used for the management
vlan	The number of the VLAN to be used for management
ip_addr	IP address used for managing the stack
netmask	Subnet mask of the management interface

Example:

```
Cajun_P330-N# set interface inband 1 149.49.42.252 255.255.255.0
Interface inband IP address set.
You must reset the device in order for the change to take effect.
```

Set port level Command

Use the `set port level` command to set the priority level of a port. Packets traveling through a port set at normal priority should be served only *after* packets traveling through a port set at high priority. Packets traveling with a 802.1p priority header are not affected by this command.

The syntax for this command is:

```
set port level <mod_num>/<port_num> {normal|high}
```

normal	Set the port priority to regular.
high	Set the port priority to high.

Example:

To set the priority level for port 2 on module 1 to high:

```
Cajun_P330-N# set port level 1/2 high
Port 1/2 port level set to high.
```

Set port negotiation Command

Use the `set port negotiation` command to enable or disable autonegotiation on a port. For 10/100Base-T ports, autonegotiation determines the speed and the duplex mode; for 1000Base-X ports it will determine the flow control (pause) mode only; meaningless for 100Base-F ports. If autonegotiation is disabled, you can set these port parameters using the relevant CLI commands (if autonegotiation is enabled, these commands have no effect).

The syntax for this command is:

```
set port negotiation <mod_num>/<port_num> {enable|disable}
```

Example:

To disable autonegotiation on port 1, module 4:

```
Cajun_P330-N# set port negotiation 4/1 disable
```

```
Link negotiation protocol disabled on port 4/1.
```

Set port enable Command

Use the `set port enable` command to enable a port or a range of ports.

The syntax for this command is:

```
set port enable [mod_num/port_num]
```

mod_num	Number of the module
---------	----------------------

port_num	Number of the port.
----------	---------------------

Example:

To enable port 3 on module 2:

```
Cajun_P330-N# set port enable 2/3
```

```
Port 2/3 enabled.
```

Set port disable Command

Use the `set port disable` command to disable a port.

The syntax for this command is:

```
set port disable <mod_num>/<port_num>
```

Example:

```
Cajun_P330-N# set port disable 5/10
```

```
Port 5/10 disabled.
```

Set port speed Command

Use the `set port speed` command to configure the speed of a 10/100Base-T port. You can configure the speed to either 10 Mbps or 100 Mbps. If autonegotiation mode is enabled for such ports, the port's speed is determined by autonegotiation, an error message is thus generated if you attempt to set the speed in this case.

The syntax for this command is:

```
set port speed <mod_num>/<port_num> {10MB|100MB}
```

Example:

To configure port 2 on module 2 port speed to 10 Mbps:

```
Cajun_P330-N# set port speed 2/2 10MB
```

Port 2/2 speed set to 10 Mbps.

Set port duplex Command

Use the `set port duplex` command to configure the duplex mode of a 10/100Base-T port. You can configure the duplex mode to either Half or Full duplex. If autonegotiation mode is enabled for such ports, the port's duplex mode is determined by autonegotiation, an error message is thus generated if you attempt to set the duplex mode in this case.

The syntax for this command is:

```
set port duplex <mod_num>/<port_num> {full|half}
```

Example:

To set port 1 on module 2 to full duplex:

```
Cajun_P330-N# set port duplex 2/1 full
```

Port 2/1 set to full-duplex.

Set port name Command

Use the `set port name` to configure a name for a port. If you do not specify a name, the port name remains empty.

The syntax for this command is:

```
set port name <mod_num>/<port_num> [<name>]
```

name	Name assigned to the port.
------	----------------------------

Example:

```
Cajun_P330-N# set port name 1/21 arthur
```

```
Port 1/21 name set.
```

Set port trap Command

Use the `set port trap` command to enable/disable generic SNMP uplink/downlink traps from a port.

The syntax for this command is:

```
set port trap <mod_num>/<port_num> {enable|disable}
```

Example:

```
Cajun_P330-N# set port trap 1/21 enable
```

```
Port 1/21 up/down trap enabled.
```

Set port vlan Command

Use the `set port vlan` command to set the Port's VLAN ID (PVID). The VLAN number must be within the range 1 to 3071.

The syntax for this command is:

```
set port vlan <VLAN_num> <mod_num>/<port_num>
```

VLAN_num Number between 1 and 3071, identifying the VLAN.

Example:

To set VLAN 850 to include ports 4 through 7 on module 3.

```
Cajun_P330-N# set port vlan 850 3/4-7
```

```
VLAN 850 modified.
```

```
VLAN    Mod/Ports
```

```
----
```

```
850     3/4-7
```

Set port channel Command

Use the `set port channel` command to enable or disable a Link Aggregation Group (LAG) interface on the module. You can also add or remove a port from an existing LAG. Ensure that all ports in the LAG are configured with the same ports' parameters such as port speed, duplex mode, VLAN ID, tagging mode, priority level. When adding a port to an existing LAG, type the same LAG-name (or no LAG-name), otherwise you will get an error message. The added port must belong to the same connector octet - refer to the "LAG" indication on device's front panel.

The syntax for this command is:

```
set port channel <mod_num>/<port_list> {on|off} [<LAG-name>]
```

port_list A list of ports to be aggregated, separated by commas

LAG-name Optional name for the LAG interface

Example:

```
Cajun_P330-N# set port channel 1/6,18 on server2
Port 1/6 channel mode set to on
Port 1/18 was added to channel
```

Set port redundancy on/off Command

Use the `set port redundancy` command to define/remove redundancy schemes between a Primary and a Secondary link. The link can be any port that does not belong to a LAG, or a LAG interface. In either case, there should not be any redundancy scheme already defined on any of the links.

The syntax for this command is:

```
set port redundancy <mod_num>/<prim_port_num> <mod_num>/
<second_port_num> {on/off} [<redundancy_name>]
```

prim_port_num Primary link of the redundancy scheme

second_port_num Secondary link of the redundancy scheme

redundancy_name Name for the redundancy scheme (optional)

Example:

```
Cajun_P330-N# set port redundancy 1/7 2/12 on red1
uplink: Port 2/12 is redundant to port 1/7.
```

Port redundancy is active - entry is effective immediately

Set port redundancy Commands

Use the `set port redundancy` commands to enable or disable the defined redundancy schemes. Using this command will not delete existing redundancy entries.



Note: You must disable Spanning Tree before you can enable redundancy.

The syntax for this command is:

set port redundancy {enable|disable}

Example:

```
Cajun_P330-N# set port redundancy enable
All redundancy schemes are now enabled
```

Set port mirror Command

Use the `set port mirror` command to define a port mirroring source-destination pair in the stack.

The syntax for this command is:

set port mirror source-port <mod_num>/<port_num> **mirror-port** <mod_num>/<port_num> **sampling** {always|disable} **direction** {rx|both}

always	Keyword to activate the port mirroring entry
disable	Keyword to change the status of the port mirroring entry to “not ready”
rx	Keyword to copy only incoming traffic
both	Keyword to copy both incoming and outgoing traffic

Example:

```
Cajun_P330-N# set port mirror source-port 1/9 mirror-port 1/10
sampling always direction both
Mirroring both Rx and Tx packets from port 1/9 to port 1/10 is
enabled
```

Set inband vlan Command

Use the `set inband vlan` command to set a value for the management vlan (from 1 to 3071).

The syntax for this command is:

set inband vlan <value>

value A VLAN number between 1 and 3071.

Example:

```
Cajun_P330-N# set inband vlan 1
Management VLAN number set to 1
```

Set flowcontrol Command

Use the `set flowcontrol` command to set the send/receive mode for flow-control frames (IEEE 802.3x or Lucent proprietary) for a full duplex port. Each direction (send or receive) can be configured separately only for Gigabit ports. Lucent proprietary flow control cannot be configured on Gigabit ports. The `set flowcontrol` command cannot be used on Gigabit ports for which autonegotiation is enabled.

The syntax for this command is:

set flowcontrol {receive|send|all} <mod_num>/<port_num>
{on|off|proprietary}

Field	Description
receive	Controls the receipt of IEEE802.3x flow-control frames on Gigabit ports only: • ON indicates that the local port will act upon flow control frames received from the far end • OFF indicates that the local port will discard flow control frames received from the far end
send	Controls the sending of IEEE802.3x flow-control frames from Gigabit ports only: • ON indicates that the local port is allowed to send flow control frames to the far end • OFF indicates that the local port is <i>not</i> allowed to send flow control frames to the far end

- all Controls the sending and receipt of flow-control frames for any type of ports:
- ON indicates that the local port will both act upon and send IEEE802.3x flow control frames
 - OFF indicates that the local port will both discard and not send flow control frames (of any type)
 - PROPRIETARY indicates that the local port will both act upon and send Lucent proprietary flow control frames.

Example:

These examples show how to use the `set port flowcontrol` command set:

```
Cajun_P330-N# set flowcontrol receive 1/51 on
```

Port 1/51 flow control receive administration status set to on
(port will require far end to send flowcontrol)

```
Cajun_P330-N# set flowcontrol send 1/51 off
```

Port 1/51 flow control send administration status set to off
(port will send flowcontrol to far end)

```
Cajun_P330-N# set flowcontrol all 1/17 proprietary
```

Port 1/17 flow control administration status set to
proprietary

Set auto-negotiation-flowcontrol-advertisement Command

The `set auto-negotiation-flowcontrol-advertisement` command sets the flowcontrol advertisement for a Gigabit port when performing autonegotiation.

The syntax for this command is:

```
set auto-negotiation-flowcontrol-advertisement <mod_num>/  
<port_num> {no-flowcontrol|asym-tx-only|sym-only|sym-and-asym-rx}
```

no-flowcontrol	The port will advertise no pause capabilities
asym-tx-only	The port will advertise asymmetric Tx pause capabilities only
sym-only	The port will advertise symmetric pause capabilities only
sym-and-asym-rx	The port will advertise both symmetric and asymmetric Rx pause capabilities

Example:

```
Cajun_P330-N# set auto-negotiation-flowcontrol-advertisement  
1/51 asym-tx-only
```

```
Cajun_P330-N# Port 1/51 pause capabilities was set
```

Set trunk Command

Use the `set trunk` command to configure the tagging mode.

The syntax for this command is:

```
set trunk <mod_num>/<port_num> {off|dot1q}
```

off	Forces the port to become a non-tagging port. The port is in the clear (tagging) mode: it will never send frames as tagged, but it will correctly interpret received tagged frames.
dot1q	Forces the port to become a 802.1Q tagging port. The port is in the tagging mode: it will send frames as tagged and will correctly interpret received untagged frames.

Example:

```
Cajun_P330-N# set trunk 1/19 dot1q  
Dot1Q VLAN tagging set on port 1/19.
```

```
Cajun_P330-N# set trunk 1/19 off  
No VLAN tagging set on port 1/19.
```

Set spantree Commands

Use the `set spantree` command to enable/disable the spanning-tree protocol for the stack.

The syntax for this command is:

```
set spantree {enable|disable}
```

Example:

```
Cajun_P330-N# set spantree enable  
bridge spanning tree enabled.
```

Set spantree priority Command

Use the `set spantree priority` command to set the bridge priority for STP.

The syntax for this command is:

set spantree priority <bridge_priority>

bridge_priority Number representing the priority of the bridge.
The priority level is from 0 to 65535, with 0 indicating high priority and 65535 indicating low priority.

Example:

This example shows how to set the bridge priority to 45000:

```
Cajun_P330-N# set spantree priority 45000
```

```
Bridge priority set to 45000.
```

Set autopartition Command

Use the `set autopartition` command to enable or disable auto-partitioning on all the half duplex ports of the stack.

The syntax for this command is:

set autopartition {enable|disable}

Example:

```
Cajun_P330-N# set autopartition enable
```

```
Auto-partition is enabled.
```

Set license Command

The `set license` command enables you to activate the SMON capability of the Cajun™ P330 stack. A Cajun P330 stack can include several Cajun P330 modules. One SMON license is required per Cajun P330 stack. Installing the license is very simple. It involves connecting a terminal to one of the Cajun P330 modules and typing in a valid license number (included in the SMON License pack) using the CLI.

For a full description of the SMON License and the installation procedure please refer to the Installation Guide provided with the SMON License.

Set internal buffering Command

The `set internal buffering` command allows you to set the size (either Maximum or Minimum) of the Receive (Rx) buffer allocated to each port of the specified module. This command is meaningless when any port of the module is operating with flow control ON.

The syntax for this command is:

```
set internal buffering <mod_num> {max|med|min}
```

max	Sets the internal receive buffer to its maximum size.
med	Sets the internal receive buffer capacity dynamically
min	Sets the internal receive buffer to its minimum size (this is the Default).

Example:

```
Cajun_P330-N> set internal buffering 1 max
```

Done.

Set intermodule port redundancy Command

Use the `set intermodule port redundancy` command to define or delete the stack's unique intermodule redundancy scheme. The defined scheme can be enabled or disabled using the reversed `set port spantree enable/disable` command.

The syntax for this command is:

```
set intermodule port redundancy <module/prim-port> <module/  
second-port> { on | off } [<name>]}
```

<module/prim-port>	the primary port number
<module/second-port>	the secondary port number
{ on off }	set (on) or clear(off) the intermodule redundancy
[<name>]	the name of the fast redundancy (default is 'fast')

Example:

```
Cajun_P330-N> set intermodule port redundancy 1/7 2/12 on  
backbone
```

```
backbone: port 2/12 is intermodule redundant to port 1/7
```

Set web aux-files-url Command

Use the `set web aux-files-url` command to allow the Device Manager to automatically locate the URL (the `http://www` address and path) of the Web server containing the Device Manager help files and Java plug-in.



Note: Ensure that the Web server is always accessible otherwise Web access to the device may take a few minutes.

The syntax for this command is:

set web aux-files-url <//IP address/directory name>

Example:

```
Cajun_P330-N# set web aux-files-url //149.93.47.25/emweb-aux-files
```

Set intelligent-multicast Command

Use the `set intelligent-multicast` command to enable or disable the IP-multicast filtering application.

The syntax for this command is:

set intelligent-multicast {enable|disable}

Example:

```
Cajun_P330-N> set intelligent-multicast enable
Done!
```

Set intelligent-multicast client port pruning time Command

Use the `set intelligent-multicast client-port-pruning time` command to define aging time for client ports.

The syntax for this command is:

set intelligent-multicast client-port-pruning time <time>
time time in seconds

Example:

```
Cajun_P330-N> set intelligent-multicast client-port-pruning-
time 20
Done!
```

Set intelligent-multicast router port pruning time Command

Use the `set intelligent-multicast router-port-pruning time` command to define aging time for router ports.

The syntax for this command is:

```
set intelligent-multicast router-port-pruning time <time>  
time      time in seconds
```

Example:

```
Cajun_P330-N> set intelligent-multicast router-port-pruning  
time 20  
Done!
```

Set intelligent-multicast group filtering delay time Command

Use the `set intelligent-multicast group-filtering-delay time` command to define group filtering time delays.

The syntax for this command is:

```
set intelligent-multicast group-filtering-delay time <time>  
time      time in seconds
```

Example:

```
Cajun_P330-N> set intelligent-multicast group-filtering-delay  
time 20  
Done!
```

Set secure mac Command

Use the `set secure mac` command to add a unicast MAC address into the CAM table of a secured port.

The syntax for this command is:

```
set secure mac <mac-address> port <mod-num>/<port-num>
```

Example:

```
Cajun_P330-N> set secure mac 1-2-3-4-5-6 port 1/17  
Port 1/17 port security enabled with 01-02-03-04-05-06 as the  
secure mac address
```

Set security mode Command

Use the `set security mode` command to enable or disable MAC security at the stack level. When enabled, the ports are secured based on their individual configuration. When disabled, all the ports in a stack are non-secured.

The syntax for this command is:

```
set security mode { enable | disable }
```

Example:

```
Cajun_P330-N> set security mode enable  
Security mode enabled.
```

Set port security Command

Use the `set port security` command to enable MAC security on a port, a range of ports, a module, or a stack.

The syntax for this command is:

```
set port security { enable | disable } [<module>[/<port>]]  
{ enable | disable } - set the port security enable or disable  
[<module>[/<port>]] - set specific module/port
```

Example:

```
Cajun_P330-N> set port security enable 1/22  
Port 1/22 secured.
```

Sync time Command

This command synchronizes the time used by all modules in a stack.

The syntax for this command is:

```
sync time
```

Example:

```
Cajun_P330-N# sync time  
Time has been distributed.
```

Get time Command

This command retrieves the time from the network.

The syntax for this command is:

get time

Example:

```
Cajun_P330-N# get time
```

```
Time is already being acquired from network!
```



Note: You must reset the switch after performing the download.

Reset Command

Use the `reset` command to restart the system or an individual module. If no module number is defined or the module number of the Master is defined, the command resets the entire system. If the module number is defined, the command resets the specified module only.

The syntax for this command is:

reset [<mod_num>]

Example:

To reset the Master agent and force the entire system to reset:

```
Cajun_P330-N# reset
```

```
This command will force a switch-over to the master module and  
disconnect your telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Connection closed by foreign host.
```

```
host%
```

To reset module 4:

```
Cajun_P330-N# reset 4
```

```
This command will reset module 4 and may disconnect your  
telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Resetting module 4...
```

Nvram initialize Command

Use the `nvram initialize` command to reset the Cajun P330 parameters to the factory defaults. If no options are specified for this command, only the Layer 2 parameters will be reset.

The syntax for this command is:

nvram initialize [switch|all]

switch	Resets all the switching level parameters (Layer 2 only) throughout the stack
all	Resets all parameters including routing parameters of the Cajun P333R modules present in the stack

Example:

```
Cajun_P330-N# nvram initialize
```

```
This command will force a factory default and switch-over to  
the master module and disconnect your telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Connection closed by foreign host.
```

```
host%
```

Configure Command

The `configure` command is not used in the Cajun P332MF switch but is used with the P333R Router (please see the P333R User Guide).

Rmon history Command

Use the `rmon history` command to create an RMON history entry.

The syntax for this command is:

rmon history <history index> <interface> **interval** <interval>
buckets <number of buckets> **owner** <owner name>

history_index	This is the history index number of this entry (it is advisable to use the same interface number as your history index number.)
interface	The Interface number is a unique number for each port which can be calculated as follows: 1024 x Module Number + Port Number For example: Port 3 in Module 1 has an Inter Number of 1027.

interval	The interval between 2 samples
number of buckets	The number of buckets defined
owner name	Owner name string

Example:

```
Cajun_P330-N# rmon history 1026 1026 interval 30 buckets 20
owner amir
history 1026 was created successfully
```

Rmon alarm Command

Use the `rmon alarm` command to create a new RMON alarm entry.

The syntax for this command is:

```
rmon alarm <Alarm Number> <variable> <interval> <sampletype>
rising-threshold <rising threshold> <rising event> falling-
threshold <falling threshold> <falling event> <startup alarm>
<owner>
```

alarm number	This is the alarm index number of this entry (it is advisable to use the same interface number as your alarm index number.)
variable	This is the MIB variable which will be sampled by the alarm entry.
interval	The interval between 2 samples
sample type	This can be set to either delta (the difference between 2 samples) or an absolute value.
rising threshold	This sets the upper threshold for the alarm entry.
rising event	The RMON event entry that will be notified if the upper threshold is passed.
falling threshold	This sets the lower threshold for the alarm entry.
falling event	The RMON event entry that will be notified if the lower threshold is passed.
startup alarm	The instances in which the alarm will be activated. The possible parameters are: Rising, Falling, risingOrfalling .

owner Owner name string

Example:

```
Cajun_P330-N# rmon alarm 1026 1.3.6.1.2.1.16.1.1.1.5.1026 60
delta rising-threshold 10000 1054 falling-threshold 10 1054
risingOrFalling amir
alarm 1026 was created successfull
```

Rmon event Command

Use the `rmon event` command to create an RMON event entry.

The syntax for this command is:

```
rmon event <Event Number> <type> description <description>
owner <owner>
```

event number This is the event index number of this entry.

type The type of the event. The possible parameters are:
trap, log, logAndTrap, none.

description A user description of this event

owner Owner name string

Example:

```
Cajun_P330-N# rmon event 1054 logAndTrap description "event
for monitoring amir's computer" owner amir
event 1054 was created successfully
```

Copy stack-config tftp Command

Use the `copy stack-config tftp` command to upload the stack-level parameters from the current NVRAM running configuration into a file via TFTP.



Note: Create the file into which you wish to upload the stack-level parameters prior to executing this command.

The syntax for this command is:

copy stack-config tftp <filename> <ip>

filename file name (full path)

ip The ip address of the host

Example:

```
Cajun_P330-N# copy stack-config tftp c:\conf.cfg 149.49.36.200
```

Beginning upload operation ...

This operation may take a few minutes...

Please refrain from any other operation during this time.

For more information , use 'upload status' command

```
*****
* If you are currently running the P330 Device Manager application,*
* it is recommended to exit from it before performing configuration*
* download operations.                                           *
*****
```

Copy module-config tftp Command

Use the `copy module-config tftp` command to upload the module-level parameters from the current NVRAM running configuration into a file via TFTP.

The syntax for this command is:

copy module-config tftp <filename> <ip> <mod_num>

filename file name (full path)

ip The ip address of the host

Example:

```
Cajun_P330-N# copy module-config tftp c:\p332mf\switch1.cfg
192.168.49.10 5
```

Beginning upload operation ...

This operation may take a few minutes...

Please refrain from any other operation during this time.

For more information , use 'show tftp upload status' command

```
*****
* If you are currently running the P330 Device Manager application,*
* it is recommended to exit from it before performing configuration*
* download operations.                                           *
*****
```

Copy tftp stack-config Command

Use the `copy tftp stack-config` command to download the stack-level configuration from a saved file into the current NVRAM running configuration, via TFTP.

The syntax for this command is:

```
copy tftp stack-config <filename> <ip>
```

filename	file name (full path)
ip	The ip address of the host

Example:

```
Cajun_P330-N# copy tftp stack-config c:\p332mf\switch1.cfg
192.168.49.10
```

Copy tftp module-config Command

Use the `copy tftp module-config` command to download the module-level configuration from a saved file into the current NVRAM running configuration of a module, via TFTP.

The syntax for this command is:

```
copy tftp module-config <filename> <ip> <mod_num>
```

filename	File name (full path)
ip	The ip address of the TFTP host

Example:

```
Cajun_P330-N# copy tftp startup-config c:\p332mf\switch1.cfg
192.168.49.10 5
```

Copy tftp EW_archive Command

Use the `copy tftp EW_archive` command to download the P330 Device Manager application into the module via TFTP.

The syntax for this command is:

copy tftp EW_archive <filename> <ip> <mod_num>

filename	Embedded Web Manager image file name (full path)
ip	The ip address of the TFTP host
mod_num	Target module number

Example:

```
Cajun_P330-N# copy tftp EW_archive c:\p332mf\332mfweb201  
192.168.49.10 5
```

Copy tftp SW_image Command

Use the `copy tftp SW_image` command to update the software image and the device manager applications of a designated module. This command assumes that both files have the same file name and location, and that only the file extension differentiates between them.

The syntax for this command is:

copy tftp SW_image <image-file> **EW_archive** <filename><ip>
<mod_num>

image-file	Common name for the files that contain the Software Image and Embedded Web archive (full path)
filename	Embedded Web Manager image file name (full path)
ip	The ip address of the TFTP host
mod_num	Target module number

Example:

```
Cajun_P330-N# copy tftp SW_image c:\p332mf\332mfweb101  
EW_archive c:\p332mf\332mfweb201 192.168.49.10 5  
Cajun_P330-N#
```

Supervisor Level Commands

This level includes all the commands of the User and Privileged Levels (including all `show` and `set` commands).

Username Command

Use the `username` command to add a local user account. You can only do this from within the Supervisor Level.

The syntax for this command is:

```
username <name> password <passwd> [access-type{read-only|read-write|admin}]
```

<code>name</code>	New user name
<code>passwd</code>	user's password
<code>access-type</code>	Access type definition - read only, read-write or administrator.

No username Command

Use the `no username` command to remove a local user account.

The syntax for this command is:

```
no username <name>
```

Show username Command

Use the `show username` command to display the username.

The syntax for this command is:

```
show username
```

Example:

```
Cajun_P330-N> show username
```

User account	password	access-type
-----	-----	-----
root	root	admin

Show radius authentication Command

Use the `show radius authentication` command to display all RADIUS authentication configurations. The shared secrets are not displayed.

The syntax for this command is:

show radius authentication

Example:

```
Cajun_P330-N(super)# show radius authentication
```

```
RADIUS authentication parameters:
```

```
-----
```

```
Mode:                      Enabled
Primary-server:            149.49.42.252
Secondary-server:         149.48.48.134
Retry-number:              4
Retry-time:                5
UDP-port:                  1645
Cajun-Service-Type:       Required
```

Set radius authentication Command

Use the `set radius authentication` command to enable or disable authentication for the Cajun P330 unit. RADIUS authentication is disabled by default.

The syntax for this command is:

set radius authentication

Set radius authentication secret Command

Use the `set radius authentication secret` command to enable secret authentication for the Cajun P330 unit.

The syntax for this command is:

set radius authentication secret <string>

string text password

Example:

```
Cajun_P330-N(super)# set radius authentication secret sodot
```

```
Cajun_P330-N(super)#
```

Set radius authentication server Command

Use the `set radius authentication server` command to set a primary or secondary RADIUS server IP address and secret.
default.

The syntax for this command is:

```
set radius authentication server <ip-addr><shared-secret>[{primary|secondary}]]
```

ip-addr	IP address of the RADIUS authentication server
shared-secret	text password that is configured identically on the RADIUS client and server.
primary	default - Primary authentication server
secondary	Secondary authentication server

Example:

```
Cajun_P330-N(super)# set radius authentication server  
149.49.38.12 sodot primary
```

Clear radius authentication server Command

Use the `clear radius authentication server` command to remove a primary or secondary RADIUS authentication server.

The syntax for this command is:

```
clear radius authentication server [{primary|secondary}]]
```

Set radius authentication retry-time Command

Use the `set radius authentication retry-time` command to set the time to wait before re-sending an access request.

The syntax for this command is:

```
set radius authentication server retry time <time>  
time          retry time in seconds
```

Set radius authentication retry-number Command

Use the `set radius authentication retry-number` command to set the number of times an access request is sent when there is no response.

The syntax for this command is:

```
set radius authentication server retry number <number>  
number          retry number
```

Set radius authentication udp-port Command

Use the `set radius authentication udp-port` command to set the RFC 2138 approved UDP port number. Normally, the UDP port number should be set to its default value of 1812. Some early implementations of the RADIUS server used port number 1645.

The syntax for this command is:

```
set radius authentication server udp-port <1812|1645>
```

Cajun P330 Embedded Web Manager

The Cajun P330 Embedded Web Manager provides the following:

- Device Configuration - Viewing and modifying the different device configurations.
- Virtual LANs - Viewing and editing Virtual LAN information.
- Link Aggregation Groups (LAGs) - Viewing and editing LAG information.
- Software Redundancy - Setting software redundancy for ports in a Cajun P330 Switch.
- Port Mirroring - Setting up port mirroring for ports in a Cajun P330 Switch.
- Trap Managers Configuration - Viewing and modifying the Trap Managers Table.
- Switch Connected Addresses - View devices connected to selected ports.
- IP Multicast filtering with IGMP snooping (new hardware)
 - Software support from s/w 3.0.
 - Hardware support - from Hardware Ver. C/S 2.0.
- Port Security.
- Intermodule Redundancy
 - One pair per stack.
 - Also operates as a result of a module fault, e.g., power failure.

System Requirements

Minimum hardware and Operating System requirements are:

- Windows® 95 or NT® 4.0 or higher
- Pentium® 200-Mhz-based, computer with 64 Mb of RAM (Pentium-II recommended)
- Minimum screen resolution of 1024 x 768 pixels
- Microsoft® Internet Explorer 4 or higher **or** Netscape Navigator® 4.x or higher
- Sun Microsystems Java™ plug-in version 1.2.2 (supplied)



Note for users of Netscape Navigator: The Java plug-in requires certain services from **Windows 95** which are not present if **Internet Explorer** is not installed. In order to add these services to the operating system, please install Internet Explorer version 3 or higher. You can then use either browser to manage the switch.

Running the Embedded Manager



Note: You should assign an IP address to the switch before beginning this procedure.

- 1 Open your browser.
 - 2 Enter the url of the switch in the format **http://aaa.bbb.ccc.ddd** where **aaa.bbb.ccc.ddd** is the IP address of the switch.
-



Note: The user name is “root”
The default password for read-write access is “root”.



Note: The Web management passwords are the same as those of the CLI. If you change the passwords of the CLI then use those passwords for Web management as well.

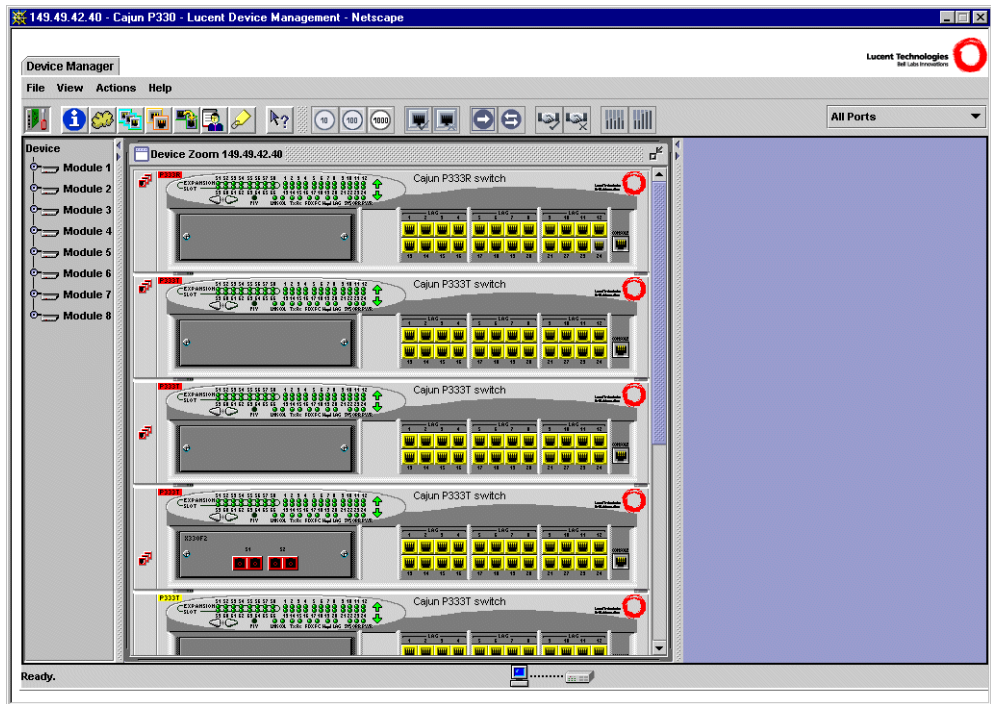
The welcome page is displayed:

Figure A.1 The Welcome Page



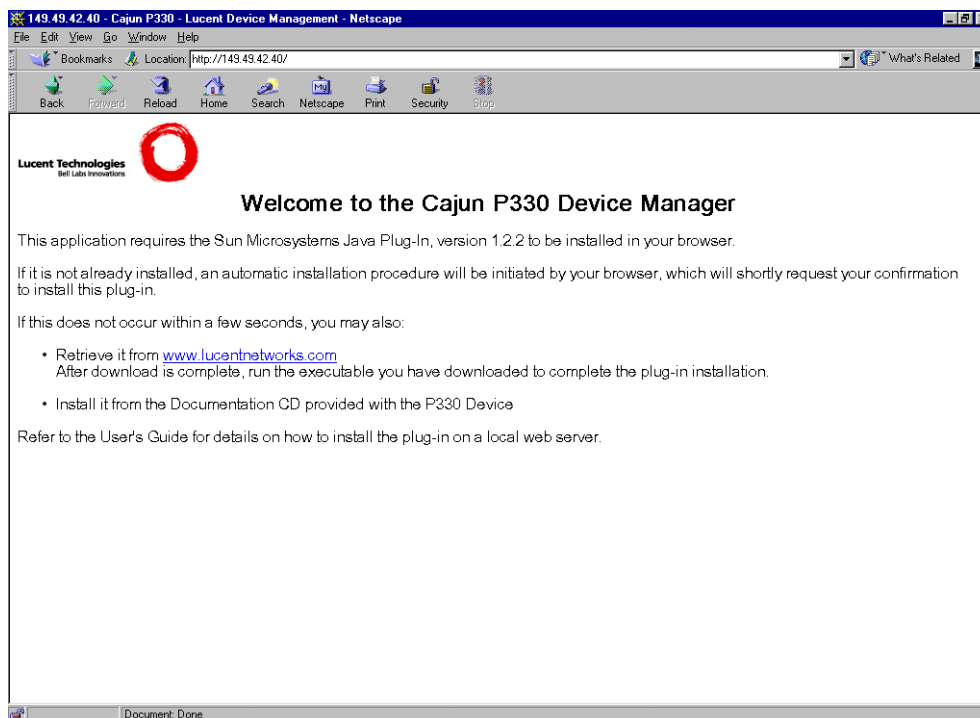
- If you have the Java plug-in installed, the Web-based manager should open in a new window (see Figure A.2).

Figure A.2 Web-based Manager



-
- If you do **not** have the Java plug-in installed, follow the instructions on the Welcome page that offers a variety of options to install the plug-in (see Figure A.3).

Figure A.3 Options for Installing the Java Plug-in



Installing the Java Plug-in

If the network manager has configured the system, the plug-in should be installed automatically.

If the plug-in is not installed automatically, then you have three options for installing it manually:

1 Installing from the Cajun P330 Documentation and Utilities CD

- 1 Close all unnecessary applications on your PC.
- 2 Insert the “Cajun P330 Documentation and Utilities” CD into the CD drive.
- 3 Click **Start** on the task bar.
- 4 Select Run.
- 5 Type **x:\emweb-aux-files\plug-in_1_2_2.exe** where **x:** is the CD drive letter.
- 6 Follow the instructions on screen.

2 Install from the Lucent Site

Click on the link in the Welcome page.

3 Install from your Local Web Site

Click on the link in the Welcome page.



Note: This option is only available if the network manager has placed the files on the local Web server.

Installing the On-Line Help and Java Plug-In on your Web Site



Note: This procedure is optional

Copying the help files and Java plug-in to a local Web server allows users to access the on-line help for the Embedded Manager and enables automatic installation of the Java plug-in the first time the users tries to manage the device.

- 1 Copy the `emweb-aux-files` directory from the “Cajun P330 Documentation and Utilities” CD to your local Web server. Please refer to your Web server documentation for full instructions.
- 2 Define the URL in the Cajun P330 using the following CLI command:
`set web aux-files-url //IP address/directory name`
where **`//IP address/directory name`** is the location of the directory from the previous step.
Refer to Chapter 6 for further details of the command.

Documentation

The Device Manager comes with a detailed User’s Guide including a Glossary of Terms and an overview of Data Communications concepts.

Software Download

You can perform software download using the CLI or Cajun UpdateMaster (part of the CajunView Suite).

Specifications

Cajun P332MF Switch

Physical

Height	2U (88 mm, 3.5")
Width	482.6 mm (19")
Depth	450 mm(17.7")
Weight	8 kg (17.6 lb)

Power Requirements — AC

Input voltage	100 to 240 VAC, 50/60 Hz
Power dissipation	150 W max
Input current	2 A@100 VAC 1 A@200 VAC
Inrush current	25 A@100 VAC (max.) 50 A@200VAC (max.)

Power Requirements — DC

Input voltage	-36 to -72 VDC
Power dissipation	150 W max
Input current	5.1 A max
Inrush current	50 A max

Laser Data

Laser type	Multimode
Wavelength	1300 nm
Output power dissipation	0.60 W max
Transmit power	-19 dbm min, -14 dbm max
Receive power	-31 dbm max

Environmental

Operating Temp.	0 to 40°C (32 to 104°F)
Rel. Humidity	5% to 95% non-condensing

Safety

- UL for US approved according to UL1950 Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Laser components are “Class 1 Laser Products”:
 - EN-60825/IEC-825-1 for Europe
 - FDA 21 CFR 1040.10 and 1040.11 for USA.
- Overcurrent Protection: A readily accessible listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

Cajun P330 DC Input Version

- Restricted Area Access: This device should only be installed in a restricted access area.
- Installation Codes: This device must be installed in accordance with the US National Electrical Code, Articles 110-26 and 110-27, and the Canadian Electrical Code, Section 12.
- Overcurrent Protection: A readily accessible Listed branch-circuit overcurrent protective device with a 15A rating must be incorporated in the building wiring.

EMC Emissions

Emissions

Approved according to:

- US -FCC Part 15 sub part B, class A
- Europe - EN55022 class A

Immunity

Approved according to:

- EN 50082-1

Interfaces

- 12 x 100BASE-FX MT-RJ port connectors.
- RS-232 for terminal setup via RJ45 connector on front panel.

Standards Compliance

The Cajun P330 complies with:

IEEE

- 802.3x Flow Control on all ports
- 802.1Q VLAN Tagging support on all ports and 802.1p compatible
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet/Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1493
- Bridge MIB for STP and CAM contents - RFC 1314
- ATM Management - RFC 1695
- RMON - RFC 1757
- SMON - RFC 2613

Basic MTBF

- 140,000 hrs minimum (see Section MTBF in Various Configurations)

Stacking Sub-module

Table B.1 Stacking Sub-module

Name	Number of Ports
X330STK	2

Expansion Sub-modules

Gigabit Ethernet Expansion Sub-modules

Table B.2 Gigabit Ethernet Expansion Sub-modules

Name	Number of Ports	Interface
X330S2	2	1000Base-SX
X330L2	2	1000Base-LX
X330S1	1	1000Base-SX
X330L1	1	1000Base-LX

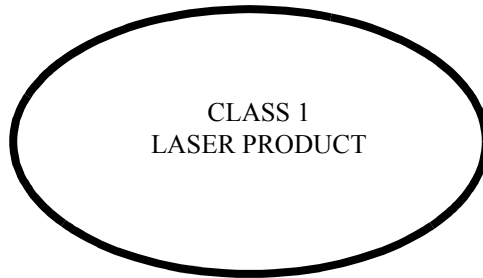
Laser Safety

The Cajun X330S1/S2 multi-mode transceivers and the Cajun X330L1/X330L2 single mode transceivers are Class 1 laser products.

They comply with IEC 825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The transceivers must be operated under recommended operating conditions.

Laser Classification



Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

The optical ports of the module must be terminated with an optical connector or a dust plug when not in use.

Laser Data

Cajun P330S2 Expansion Sub-modules

Wavelength: 850 nm

Output power dissipation: Max. 0.63W

Transmit power: Min. -9 dbm, Max. -4 dbm

Receive power: Min. -17 dbm, Max. 0 dbm

Cajun P330L1/2 Expansion Sub-modules

Wavelength: 1300 nm

Output power dissipation: Max. 0.68W

Transmit power (9 μ m SMF): Min. -9.5 dbm, Max. -3 dbm

Transmit power (62.5 μ m and 50 μ m MMF): Min. -11.5 dbm, Max. -3 dbm

Receive power (9 μ m SMF, 62.5 μ m and 50 μ m MMF): Min. -20 dbm, Max. -3 dbm

Fast Ethernet Fiber Expansion Sub-module

Table B.3 Fiber Fast Ethernet Expansion Sub-module

Name	Number of Ports	Interface
X330F2	2	100Base-FX

Ethernet/Fast Ethernet Expansion Sub-module

Table B.4 Ethernet/Fast Ethernet Expansion Sub-module

Name	Number of Ports	Interface
X330T16	16	10/100Base-T

GBIC Expansion Sub-module

The Cajun X330G2 Expansion Sub-Module is the GBIC (1.25 Gbit/s Gigabit Ethernet) Expansion sub-module for the Cajun P330 family of stackable switches.



Note: In order to use this module the Cajun P330 switch must must have Embedded S/W Version 2.2 or higher. You can download this from:
<http://www.lucentnetworks.com/>

The X330G2 can be used either as a Gigabit Ethernet link or as a high Bandwidth backplane for connecting switches. The introduction of the GBIC interface to the Cajun P330 family presents an added value over the existing Gigabit Ethernet expansion modules. You can insert any of the Lucent-authorized GBIC transceivers into the X330G2 Expansion sub-module socket. This provides you with a highly modular and customisable Gigabit Ethernet interface. The GBIC transceivers are hot-swappable.

Safety Information

The multimode and single-mode GBIC transceivers are Class 1 Laser products. They comply with EN 60825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The GBIC transceivers must be operated under recommended operating conditions.

Laser Classification



Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

When a GBIC transceiver is inserted into the X330G2 Expansion sub-module but is not in use, then the Tx and Rx ports should be protected with an optical connector or a dust plug.

Lucent Approved GBIC Transceivers



Caution: All Lucent approved GBICs are 5V. Do not insert a 3.3V GBIC.

Lucent supplies the following two GBIC transceivers for the Cajun P330 X330G2 Expansion Sub-modules. You can order these directly from your local Lucent representative using the PEC or COM Codes:

Type	Description	PEC Code	COM Code
GBIC SX Transceiver	Multimode Fiber 1000BaseSx (550 m)	4705-122	108659228
GBIC LX Transceiver	Single-mode Fiber 1000BaseLx (10 km)	4705-121	108659210

In addition, Lucent has tested and approved a number of GBIC transceivers from other manufacturers for use with the Cajun X330G2 Expansion sub-module. An up-to-date list can be found in in Lucent Networks’ World-Wide Web site at the following address: <http://www.lucentnetworks.com/>
Click on the “Supported Devices” icon.

Specifications

X330G2- LX GBIC Transceiver

A 9 μm or 10 μm single-mode fiber (SMF) cable may be connected to a 1000Base-LX GBIC port. The maximum length is 10 km (32,808 ft).

A 50 μm or 62.5 μm multimode (MMF) fiber cable may be connected to a 1000Base-LX GBIC port. The maximum length is 550 m (1,804 ft.) for 50 μm and 62.5 μm cable.

The LX transceiver has a Wavelength of 1300 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

X330G2- SX GBIC Transceiver

A 50 μm or 62.5 μm multimode (MMF) fiber cable may be connected to a 1000Base-SX GBIC port. The maximum length is 500 m (1,640 ft.) for 50 μm cable and 220 m (722 ft.) for 62.5 μm cable.

The SX transceiver has a Wavelength of 850 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

Agency Approval

The transceivers comply with:

- EMC Emission: US – FCC Part 15, Subpart B, Class A;
Europe – EN55022 class A
- Immunity: EN50082-1
- Safety: UL for US UL 1950 Std., C-UL (UL for Canada) C22.2 No.950 Std., Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11, and CE for Europe EN60950 Std. Complies with EN 60825-1.

MTBF

The Mean Time Between Failures (MTBF) for the X330G2 Expansion Sub-module is 594,639 hours.

X330GT2 Gigabit Ethernet Expansion Sub-module

The X330GT2 Expansion sub-module provides two copper Gigabit Ethernet 1000Base-T ports.



Note: The X330GT2 module is only supported by Cajun P330 embedded software versions 2.4 and higher.

Installing the Expansion Sub-module in the Cajun P330

- 1 Remove the blanking plate or other sub-module (if installed).
- 2 Insert the sub-module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
- 3 Press the sub-module in firmly until it is completely inserted into the Cajun P330.
- 4 Gently tighten the two screws on the front panel of the expansion sub-module by turning the screws.



Note: The expansion sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Removing an Existing Expansion Sub-module

- 1 Loosen the screws by turning the knobs.
- 2 Grasp the two knobs one near each side of the front panel, and pull gently but firmly towards yourself.
- 3 Insert another expansion sub-module or the blanking plate.



Note: The Cajun P330 switch must not be operated with the expansion slot open; the expansion sub-module should be covered with the supplied blanking plate if necessary.



Note: X330GT2 sub-modules are hot swappable and can be inserted or removed in an operating base unit.

Cabling

A Category 5 copper cable with RJ-45 termination should be used. You should use all eight wires in the cable.

The maximum copper cable length connected to a 1000Base-T port is 100 m (328 ft.)

ATM Expansion Sub-modules

There are three Cajun P330 ATM Expansion Sub-modules:

- X330-OC12F1: 500m, Multimode fiber, can also be OC-3 reduced range
- X330-OC12S1: 15 km, Single-mode fiber, can also be OC-3
- X330-OC3F1: 2 km, Multimode fiber (future version).

The ATM sub-modules can be installed in the following Cajun P330 Family switches:

- Cajun P333T Hardware Version C/S 1.3 and higher, with Embedded S/W 2.4 and higher.



Note: The ATM Expansion Sub-module cannot be used in Cajun P333T hardware Versions lower than C/S 1.3.

-
- Cajun P334T Embedded S/W Ver. 2.4 and higher.
 - Cajun P332MF Embedded S/W Ver. 3.0 and higher.
 - Cajun P333R Embedded S/W Ver. 2.4 and higher.

Refer to the Cajun X330 ATM Access Module User's Guide for installation procedures.

The multimode Cajun X330-OC12F1 and X330-OC3F1 (future) ATM sub-modules are Class 1 LED products. The single-mode X330-OC12S1 ATM sub-module is a Class 1 Laser product. They comply with EN 60825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The sub-modules must be operated under recommended operating conditions.

Safety Information

Single-mode Module Laser Classification



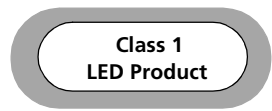
Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

Multi-Mode Module LED Warning

The following warnings apply to the X330 ATM sub-modules equipped with multi-mode fiber.



Warning: Class 1 LED Product. Do not view the LED through any magnifying device while it is powered on. Never look directly at the fiber Tx port and fiber cable ends when powered on.

Backup Power Supply (BUPS)

Physical

Height	2U (88 mm, 3.5")
Width	482.6 mm (19")
Depth	450 mm(17.7")
Weight	10 kg (22 lb)

Power Requirements

Input voltage	100-240 VAC, 50/60 Hz
Input current	7.76 A@100 VAC 3.82 A@200 VAC
Inrush current	70 A@100 VAC (max.) 150 A@200 VAC (max.)
Output power	4 x 27 A@ 5.5 V
Output voltage	5.5V

Environmental

Operating Temp. 0-50⁰C (32-122⁰F)

Rel. Humidity 5% to 95% non-condensing

Safety

- UL for US approved according to UL1950 Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Overcurrent Protection: A readily accessible Listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

EMC Emissions

Emissions

Approved according to:

- Europe - EN55022 class A, 1994
- Europe - EN 6150-3-2 (Harmonics Current Emissions)
- Europe - EN 6150-3-3 (Flicker)

Immunity

Approved according to:

- EN 50082-1
- IEC 150-4-5

BUPS MTBF

- 125,194 hrs minimum (see Section MTBF in Various Configurations)

MTBF in Various Configurations

The following table provides the MTBF for the Cajun P332MF in various configurations.

Table B.7 MTBF for the Cajun P332MF in Various Configurations

Model	Without BUPS		With BUPS	
	Without X330STK	With X330STK	Without X330STK	With X330STK
P332MF	163,995	140,766	242,000	200,000
P332MF+X330T16	137,893	121,080	186,000	159,000
P332MF+X330F2	133,227	117,467	178,000	154,000
P332MF+X330L2/ X330S2	125,298	111,259	165,000	144,000
P332MF+X330L1/ X330S1	>125,298	>111,259	>165,000	>144,000
P332MF+X330G2	128,568	113,830	168,000	149,000
P332MF+X330GT2	137,571	120,831	186,000	160,000

How to Contact Us

To contact Lucent's technical support, please call:

From the United States:

1-800-237-0016, press 0, then press 73300

From South America, and Central & Latin America (CALA):

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